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PAGE 402

Review

MUNTGEWICHTEN VOOR MUNTEN VAN DE NEDERLANDEN by G.M.M.Houben.

(Coin Weights for Coins from the Netherlands)

Another excellent, well-arranged book by Gerard Houben - it covers the coin weights made for weighing 30 gold and 11 silver coins, from the Low Countries, over a period of 500 years. There are 216 full-size illustrations of weights made in Holland, Belgium, France, Germany, Ireland, Italy, Poland and in Switzerland. At the top of each page there is a photograph of the coin for which the weights were made. This most useful and interesting idea helps to relate the symbols and initials on the weights with the coin design. Also included, are an explanation and illustration of verification marks and maker's marks; a table of initials and their meaning; a list of coins with their dates, weights, monarchs and origin; and a chart showing the rulers of the Netherlands.

Collectors owning a set of Dutch scales and weights will want this book to learn more about the origins of the beautiful weights and labels. Much of the information can be understood by non-Dutch speaking readers, but perhaps next time, Dr.Houben will find it possible to provide English sub-titles for the main facts.

Muntgewichten voor Munten van de Nederlanden. By G.M.M.Houben. 78 pages, price FL 30, including postage. Available from the author, address Hugo de Vrieslaan 12, 8024 Zwolle, The Netherlands.

Cover Picture

This most unusual and attractive desk set has a 'candlestick' letter scale, two inkwells and, at the front, a pen-nib cleaner. Each is set in a brass mount on a papier mache base. The frame behind the scale is a pen rack which is adorned by an eagle. Flags and a floral wreath decorate the letter plate. On the front of the scale there are graduations ½ to 4oz with postage rates for the period 1840 to 1865. Below the graduations is the name T.Wharton & Sons, Birmingham. (See also, 'Candlesticks' on page 403). *This superb desk set was auctioned, recently, by Phillips, Son & Neale, London.*

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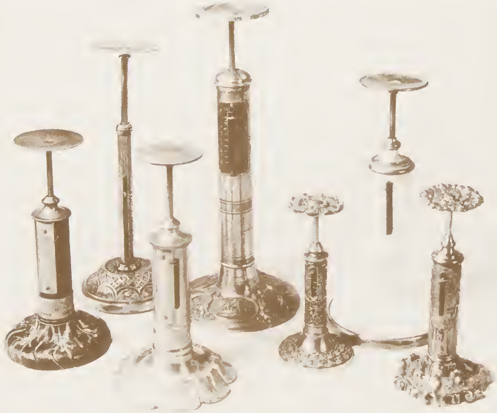


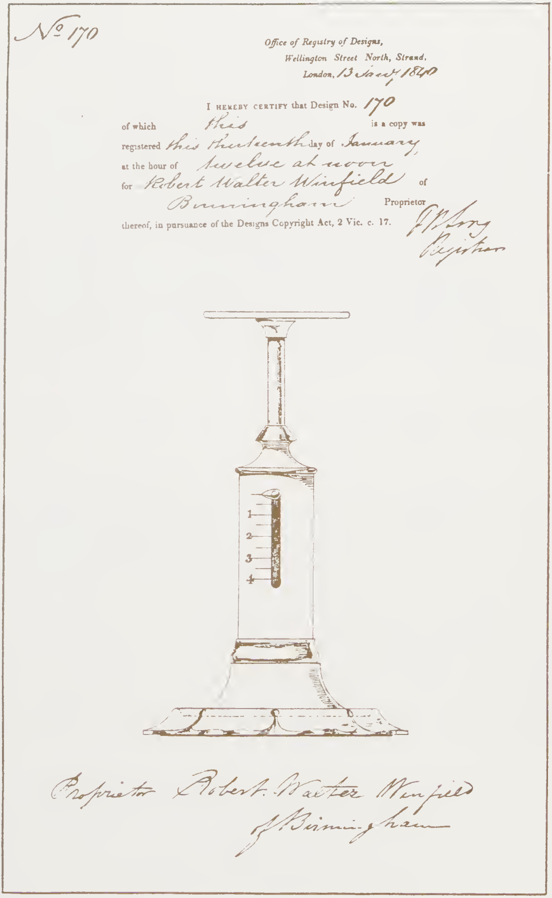
Candlesticks

BRIAN BRASS

The "candlestick" was one of the most interesting of the early type of postal scales. It was introduced almost immediately after the inauguration of the penny post, prior to which mail had been charged by distance, rather than by weight. It was during this period that the inventiveness that provided the inspiration for the industrial revolution merged so spectacularly with the genius for artistry and design that typified the early Victorian society.

Seldom is this partnership better exemplified than in the candlestick type of postal scale. A quick look at the small group, above, will show why they acquired this description. The first examples date from early 1840, and the design, here in England, is thought to have lasted about twenty-five years. Production over such an extended period provides some indication of their popularity, and is also partly responsible for a reasonable supply being still available. Curiously, despite their abundance, there are only three known makers.

The vast majority of candlestick postal scales were manufactured by Robert Walter Winfield and the brothers Joseph and Edmund Ratcliff. Winfield worked in the Birmingham area from 1829 to 1860 and had a factory on the Baskerville Estate. He manufactured all types of scales, including sovereign "rockers". The Ratcliffs also had a factory in Birmingham, at 59 & 60 St.Paul's Square, and featured in trade directories from 1834 to 1864. They, too, manufactured all types of letter scales. Joseph died in 1862 and Edmund continued on his own until 1881.



No 170

Office of Registry of Designs,
Wellington Street North, Strand.
London, 13 Jany 1840

I HEREBY CERTIFY that Design No. 170
of which this is a copy was
registered this thirteenth day of January
at the hour of twelve at noon
for Robert Walter Winfield of
Birmingham Proprietor
thereof, in pursuance of the Designs Copyright Act, 2 Vic. c. 17.

Registrar

Proprietor Robert Walter Winfield
of Birmingham

FIG 1.

With one or two exceptions, these two firms made not only items which bore their own names, but also are thought to have manufactured a vast number of unlabelled scales for sale by wholesalers and retailers of specialist office supplies. One or other almost certainly made the items which appeared in the American Fairbanks' catalogues in the 1850's with that company's label firmly embossed.

The third known maker was the American firm of Chatillon. Their individualistic design appears in the catalogue of that firm dated 1894 - some thirty years after production in England had declined.

The possibility of a further manufacturer of candlesticks has recently arisen. The name T.Wharton & Sons, Birmingham is on a desk set (see Cover Picture) consisting of a candlestick letter scale, two inkwells, a pen holder and a nib cleaner, all on a papier mache base. The decorative style of Wharton's candlestick is very similar to many other un-named examples, which suggests

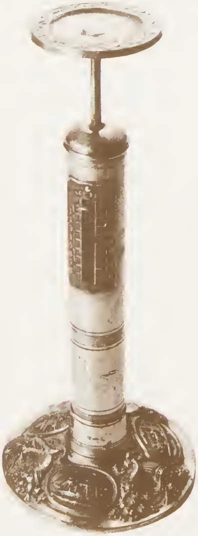


FIG 2.

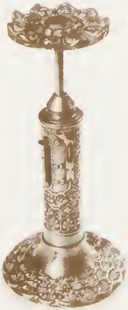


FIG 3.

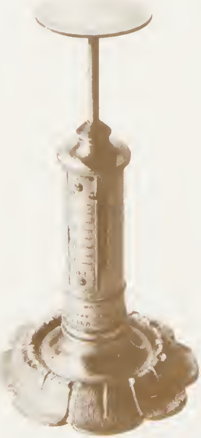


FIG 4.

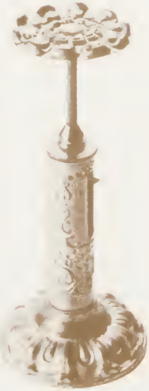


FIG 5.

FIG 2. Unsigned example. Base decorated with cornucopia and scenes from industry. Height 9ins (230mm). Graduated 0 - 8oz.

FIG 3. Miniature only 4½ins (115mm) high. Graduated 0 - 1oz.

FIG 4. Example made to the Registered design. Marked R.W.Winfield and the Registration date. Height 6¼ins (160mm). Graduated 0 - 4oz.

FIG 5. The finish on this example simulates matt gilding. Marked J.& E. Ratcliff. Height 5½ins (140mm). Graduated 0 - 2oz.

that they all may have been made by this firm. Alternatively, the desk set may merely have been 'assembled' by Wharton, the scale itself having been made elsewhere, under contract. (Other, more famous manufacturers are known to have adopted this practice). The former idea seems more likely because Thomas Wharton & Sons were listed in trade directories of 1862 and 1876 as makers of letter scales (and stationer's sundries), at 4 Great Charles Street, Birmingham. Also, their name was formed integrally with the tube. As the desk set is the only reported example of a scale bearing Wharton's name, the final conclusion must await further evidence.

In construction, candlestick balances were all based on a spring compressed within the confines of a slender tube. (Certain extremely rare varieties used a spring in tension). The spring was attached to a rod housed in the centre of the tube, and the rod carried the letter plate above.

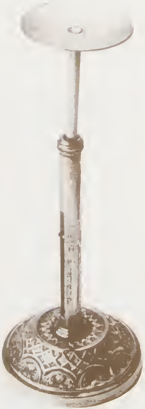


FIG 6.

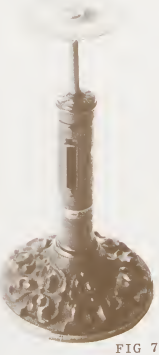


FIG 7.

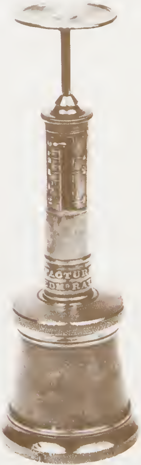


FIG 8.

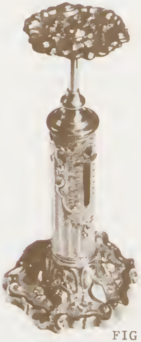


FIG 9.

FIG 6. Unusually slender design with rare tension spring. Unsigned. Height 8ins (200mm). Graduated 0 - 5oz.

FIG 7. Unsigned example with a brown-black patina and gold-coloured bands around the tube and the cast brass base. Height 6½ins (166mm) 0 - 2oz.

FIG 8. A scale by Jos.& Edmd.Ratcliff, mounted on a call-bell. Grad. 0 - 2oz.

FIG 9. Scale by R.W.Winfield. Ornate decoration was impressed into the thin sheet brass base and letter plate. Height 5½ins (140mm) Grad. 0 - 2oz.

FIG 10. Details of industrial scenes from the base of Fig 2.
FIG 11. Cherub decoration on a miniature 4½ins (115mm) high.
FIG 12. Letter plate from the Bristol milk-glass scale, Registered by R.W. Winfield, September 5th, 1848.

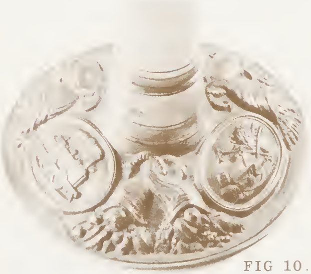


FIG 10.

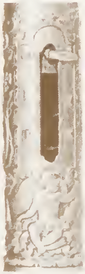


FIG 11.

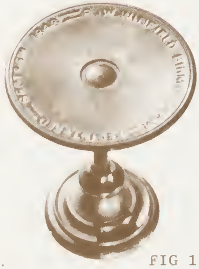


FIG 12.

Some candlesticks bear a date, but this is not, as may be thought, the day of manufacture, but the date on which the design was first registered. For example, an early Winfield bore the inscription **No.170 JANUARY 13, 1840**, and Fig 1. shows the actual design registered by Winfield at the Office of Registry of Designs on 13th January 1840. The issue of the *London Gazette* dated 28th December 1839 carried the announcement that the Penny Post would begin on 10th January 1840, from which it can be seen how keen Mr.Winfield was to profit from this new field of endeavour. An example of a scale made exactly to the registered design is shown in Fig 4.

What makes candlestick scales so delightful to collect is the fact that each specimen seems to differ slightly from the next. Some bear outstandingly beautiful design work on the base, Figs 3,6,7,9, many have a pastoral motif, while others, such as Fig 2, depict scenes from the industrial revolution - a steamship, a steam locomotive and farm machinery. Some of the English examples, like the one in Bristol milk glass, p403, and all of those by Chatillon, have the tube and base made in one piece, but the majority have a sturdy base made as a separate part.

The materials from which these scales were constructed, also varied, and examples have been noted in glass, bronze, ivory as in Fig 13, silver and brass. The brass was treated in different ways to give an attractive appearance. Some were simply polished and lacquered, some had a finish which simulated matt gilding and others were given a brown-black patina with gold-coloured bands. This dark finish was chemically produced and should not be mistaken for ordinary oxidation.

Candlestick scales were mostly free-standing, but a few were set onto elaborate bases, such as wood and marble, or onto a pen and ink stand. One example seen had a thermometer attached to the stem (one wonders what purpose was served by combining these two measuring devices?), and another had a hand-bell set into the base, Fig 8. These letter scales usually weigh up to 4oz, although the tiny example in Fig 3. weighs only up to 1oz. ▷

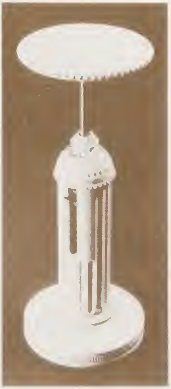


FIG 13

They also varied considerably in height. They were as small as 3½ins (88mm) and one example og this height was made of solid silver by an unknown American firm. Others were as tall as 15ins (350mm) in the form used for weighing parcels up to 16oz. The most common size was about 6ins (150mm).

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The author thanks Michael Crawforth and Morton Wormser for information and assistance.

FIG 13. An unusual example in carved ivory. Base is marked underneath W.I.E.Rooke. (Thought to be the ivory carver). Height 6¼ins (106mm) 0-4oz.

This article was first published in Antique Collecting, June 1981.

Showcase

1. Steelyard with two beams which slide through the centre saddle. The top beam is graduated 0 - 10kg x 100g and it can be fixed in any desired position by a locking screw. The bottom beam is graduated 0 - 12kg x 100g. Iron, with a brass saddle marked FUCOMA, Berlin N65. Length 400mm (15¾ins).

HERBERT GRIESHABER COLLECTION

2. Precision balance with a single pan and optical indicator with vernier graduations. Model 'Testmatic' by Mikrowa, Walzenhuasen, Switzerland. Height 320mm (12½ins).

HANS JENEMANN COLLECTION

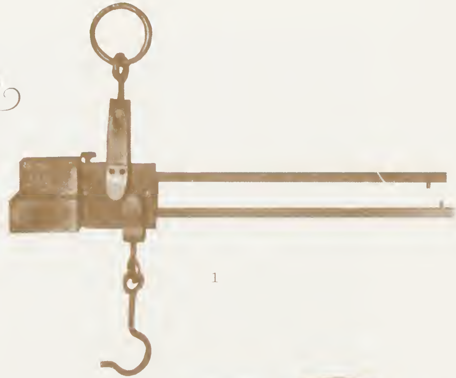
3. 'Victoria' weights which fit into an attractive brass base. Weights have the denominations 2,1 lb, 8,4,2,1,½ oz. for trade use.

BOB STEIN COLLECTION

4. Letter scales in brass with engraved decoration. Walnut base with brass filigree-work. Weights 4,2,1,½oz. A green paper label under the base states 'Austin, 9 Westmoreland, Dublin'.

LOU UIT DEN BOOGAARD COLLECTION

SHOWCASE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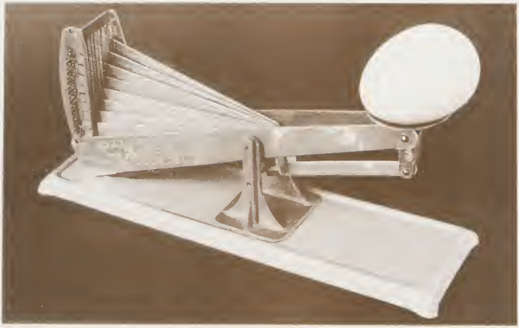

Egg Scales *(Pt. 2)*

MICHAEL CRAWFORTH

Although the USA was first to consider criteria for the sale of eggs, Great Britain was the first to have legislation requiring the weighing of eggs. Thus, for Northern Ireland, the Marketing of Eggs Act, of 1924, required eggs to be "...sold in accordance with specified weight grades in standard cases.." instead of by number alone. In England there seems to have been no equivalent Act, and it was not until 1928 that the Agricultural Produce (Grading and Marketing Eggs) Regulations required eggs to be graded by weight for sale. The first egg scale to be approved by the Board of Trade, for stamping by Inspectors of Weights and Measures, was a steelyard graduated from 1½oz to 3oz by 1 dram divisions. It was made by W.A.Webb of London, and received approval in February 1930. (see No. 49 for the 1955 version of Webb's scale).

Today, scales for weighing single eggs are still available, largely for hatching purposes. The ideal weight for a hen's egg for hatching is around 2oz (57g). Eggs for sale, however, are graded by large automatic machines capable of handling around 130 eggs per minute. A conveyor belt feeds eggs into the machine which automatically grades and dispenses them via the appropriate shute, Fig 4. These machines were subject to inspection by the Weights and Measures Administration, so Inspectors used a set of egg poises to make their tests. These first became available, in England, in February 1937. A patent for hollow test weights loaded with lead shot was obtained by R.Brookhouse in 1958. They were made in two halves, Fig 6. Typical aluminium egg poises were shaped like truncated eggs, No. 38, and were in sets of 16 in a box. Their weight ranged from the heaviest "2 3/16oz + 1/2dram" to the lightest "1 1/2oz - 1/2dram" and they were sometimes colour-coded to aid identification. ▷

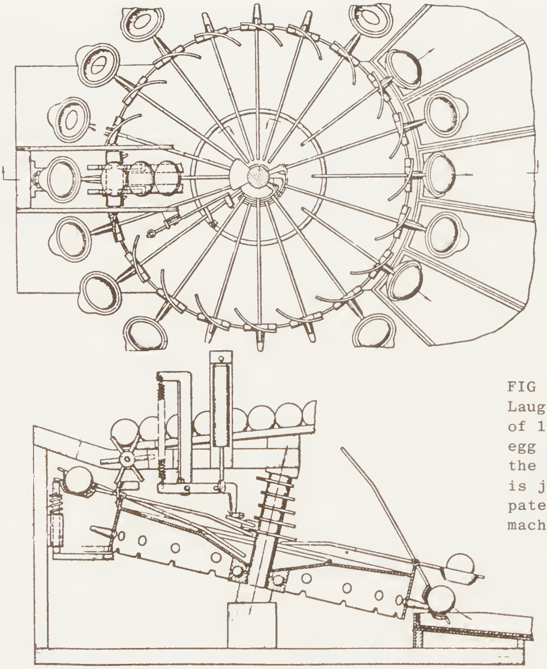

FIG 4. Drawing from A. Laughlin's British patent of 1963 for an automatic egg grading machine of the carousel type. This is just one of many such patents for egg grading machines.

Similar egg-shaped poises were available in America for 17 to 30oz per dozen. They were called 'Bean's Adjustable Rolling Egg Test Weights' and the makers claimed they were "The most accurate testing device for all egg graders, because the center of gravity in this artificial egg is in precise relationship to the actual weighing conditions". Disc-shaped test weights were also made in America, No. 44.

In England, egg scales were commonly graduated from 0 to 4oz by 1 or by 2 dram divisions (16 drams = 1oz). Some had larger capacities, 6oz or 8oz. At first, the grades were :-

1 5/8 1 7/8 2 3/16 oz
PULLET | MEDIUM | STANDARD | SPECIAL

On many scales, the pullet grade was omitted, while one or two examples had additional grades for duck eggs :-

	2		2 1/2	oz
SMALL		STANDARD		SPECIAL

Makers were not always consistent in their terminology, and other methods of presentation may be seen, for example :-

1 1/2oz or over. 1 5/8oz or over. 1 7/8oz or over. 2 3/16oz or over.

When the British Egg Marketing Board was established in 1956, a new grading scheme was devised and these weight sizes continued in use until the EEC Egg Weight Grades became compulsory, in 1978.

	1 1/2		1 5/8		1 7/8		2 3/16	oz
EXTRA SMALL		SMALL		MEDIUM		STANDARD		LARGE

In America, it was customary to make egg scales of the estimating type, and the graduations showed the weight per dozen eggs(twelve), based upon the weight of a single egg. A patent of 1918 gave USA grades as :-

17		21		26	oz per doz.
	PULLET		STANDARD		SELECT

Scales were commonly graduated 19 to 26oz per dozen, and 18 to 30oz per dozen, by 2oz steps. The latter is equivalent to 1 1/2oz to 2 1/2oz per single egg. Some American scales had additional marks for the weight of one egg, while others had provision for one or two grades only, (typically 19oz and 22oz per dozen). Later, grades were as follows :-

15		18		21		24		27		30	oz/doz
	PEEWEE		SMALL		MEDIUM		LARGE		EXTRA LARGE		JUMBO

One example of a Canadian egg scale has been seen by the author (the design was similar to No.8) Grades were marked thus :-

18		20		22		24	oz/doz
			PULLET A1		MEDIUM A1		LARGE A1
	PULLET A						

Only one German egg scale has been recorded by the author, No. 13, and it had the following grades :-

GRAMS	75	65	60	55	50	45
	S	A	B	C	D	KLEIN

The grading system adopted by the European Economic Community has seven grades :-

GRAMS		70		65		60		55		50		45	
GRADE	1		2		3		4		5		6		7

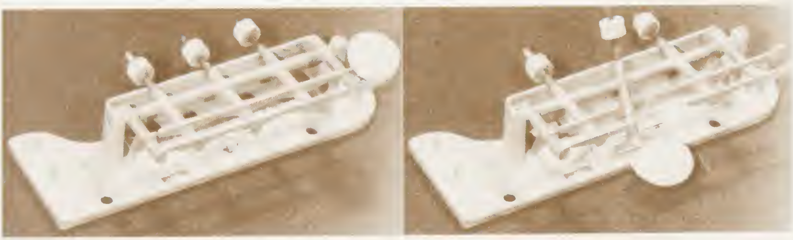

FIG 5. The weighing element of an automatic egg grader. The eggs roll by gravity along two rails which are divided into three sections. Each section is attached to a counterpoised weighbeam, and when the egg rolls on to the section of the correct grade, the beam tilts down allowing the egg to roll into a suitable receptacle. Patented by Bramall and Brookes-King, in Britain, in 1928.

EGGSTEND OUR KNOWLEDGE !

Readers who have egg scales of a type not illustrated in this article are invited to send details to the author, for use in a supplementary article. It would also be interesting to know if countries other than England, America, Canada and Germany had scales for grading eggs.

ACKNOWLEDGEMENTS

The author thanks Brian Brass, Herb Chandler, Bill Doniger, Al Eaches, Don Gorlick, Gerard Houben, Utz Schmidt, June Simmen, Russell Stevens and the Avery Historical Museum for their kind help in supplying information for this study. Special thanks are given to David Bingham and Maurice Stevenson for digging-out official records on the grading of eggs by weight.

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29. Speedie Egg Scale, Poltriquip Line, Reliable Mfg. Co. Los Angeles, Calif. USA. Cast alloy on a wood base. Unequal-arm type. Base 190mm (7½").

30. The Champion Egg Scale, Carlstedt Mfg. Co. Edmonds, Washington, USA. Patented 1925. Brass beam and cup; lead weight; unpainted wood base; beam graduated 19 - 26 oz per doz. Steelyard type. Length 222mm (8¾").

31. Parnall's Egg Balance. English. All brass; Graduated 0 - 4oz; levelling screw; Pendulum type.

32. Unique Egg Grading Scale, The Specialty Mfg. Co, St.Paul, Minn, USA. Painted sheet metal; aluminium quadrant; graduated 16 - 30oz per doz. Pendulum type. Base 190mm (7½").

33. Columbus. (Trade name used by P.J.Maul, Hamburg, Germany). Brass cup and mechanism; black painted cast metal base and column; graduated 0 - 1oz x 1 dram and 1 - 4oz x 2 dram. Two opposed pendulums swing out under the load, until equilibrium is reached. Bilateral pendulum type. Height 180mm (7½").

34. Standard Egg Scale, Petaluma Electric Incubator Co. Petaluma, USA. Iron beam galvanised; lead weight; unpainted wood base; the weight is marked '22' (oz per doz). Unequal-arm rocker type.

35. Lincoln Egg Grader Scale, R.V.B. Lincoln Mnfr. Escondito, Ca, USA. Simple sheet metal beam pivotting on two feet on any convenient flat surface. Unequal-arm rocker type.

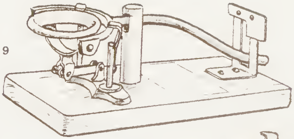
36. Summit-Hanning Egg Weigher. Summit Appliances, Cope & Cope Ltd, Reading, England. Patent 397522 (1932, Cope & Cope Ltd). Painted metal case; graduated 0 - 4oz x 1 dram. Pendulum type with a damper to reduce the number of oscillations. Height 266mm (10½").

37. S.T.S. (Trade mark of Samuel Turner, Senior, Birmingham, England). Registered design No. 721285 (1926). Brass scales; aluminium letter and egg plate; wood base stained mahogany colour; brass weights 2,1,½,¼ and 1/8 oz. Roberval type. Length of base 178mm (7").

38. Egg poise used by inspectors of Weights and Measures to test automatic egg grading machines. See page 410.

39. Zenith Pedigree Scale, Earlville, N.Y. USA. Cast metal beam painted red; pale blue painted frame; graduated 17 - 31oz per doz; suspended by the loop at the top. Pendulum type. Compare with stand version, No.9, page 379.

40. Salter No.18E by Geo.Salter & Co. Ltd., West Bromwich, England. Gray plastic case; brass egg cup; zero is adjusted by sliding the graduated chart up or down. Graduated 0 - 4oz x 2 dram, and grade bands for small, medium, standard and large eggs. Half-roberval and spring; height 115mm (4½"). The 1966 catalogue states "...accuracy better than one part in 64"



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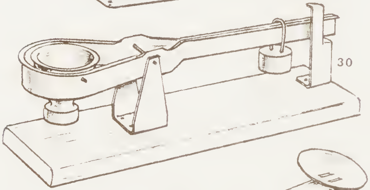

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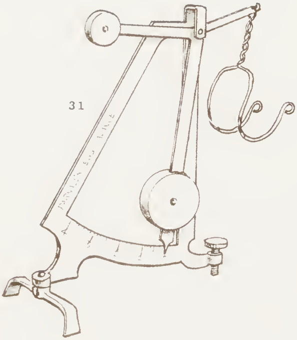

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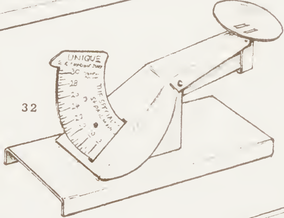

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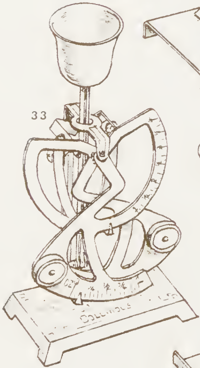

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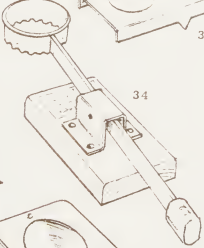

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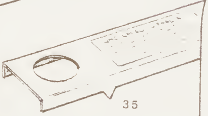

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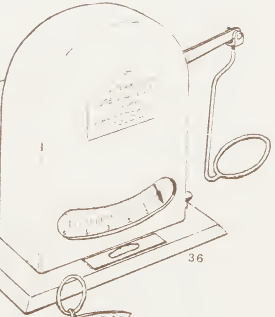

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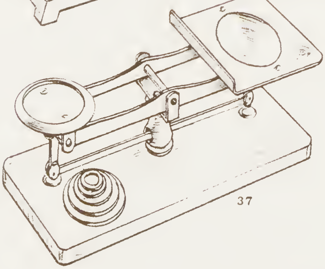

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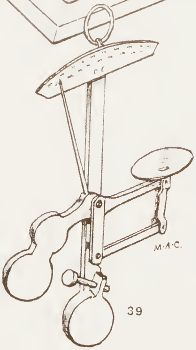


39

41. Unsigned, USA. Sheet metal construction with green base and yellow beam. Steelyard rocker type. Length 300mm (11¾").

42. Henry Troemner, Phila, USA. Black enamelled iron; checks one weight only, 22oz per doz. Illustrated in catalogue 1926.

43. Unsigned, English. Illustrated in the 1939 catalogue of Johnson, Clapham & Morris Ltd. Two socket version, as shown, available for 1¾ & 2oz, or 1 7/8 & 2oz, price 1s 6d. Single hole version available for 1¾, 1 7/8, 2 or 2 1/8oz, price 1s each. Unequal-arm rocker type.

44. Reliable Mfg. Co. Los Angeles, USA. Disc-shaped egg poises marked, for example, "24oz TEST WEIGHT" Diameter about 50mm (2").

45. Unsigned, USA. Green painted sheet metal with black and silver-coloured graduations. Pendulum type. Height 190mm (7½").

46. John Chatillon & Sons, New York, USA. This design was offered to the State of California Department of Agriculture, in 1946. Graduated 0 - 30 oz per doz x 1oz; spring type; Height 560mm (22"). An alternative face was available with coloured bands to indicate grades.

47. AA Feather-Lite Scale, C.S.H. Industries Inc, Oak Lawn, Illinois, USA. Cast metal construction; graduated 16 - 32oz per doz, but also available in grams; The maker claims "Best - because we build 'em that way. Hand-made from precision parts" ! Pendulum type.

48. Unsigned, English. Carved from solid wood; capacity stencilled on the beam 'To Weigh 2oz'; rocker type.

49. William A.Webb Ltd. Ilford, Essex, England. Cast iron frame painted black; chromium-plated beam, weight and hanger; nickel-alloy adjustment weight; levelling screw and spirit level; graduated 1½ - 3oz x 1 dram; 2oz test weight provided; label on frame states "For Egg Weighing". The scale can be dismantled to fit in its flat fitted mahogany box, the foot and the egg holder are turned through 90° to make them flat. Verification stamp for 1955. Beam length 190mm (7"). Steelyard type.

831,381. Weighing apparatus. BROOKHOUSE, R. Jan. 2, 1958 [Jan. 3, 1957], No. 303/57. Class 143

FIG.2.

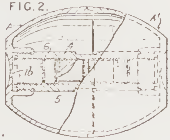
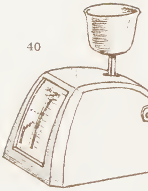


FIG 6.

Poises which are passed through weight responsible egg grading machines to test the grading mechanism, each comprise a pair of shells A, A¹ screwed on to the ends of a member 4 which has a pair of symmetrically arranged pockets adapted to receive equal weight lead pellets 5 which adjust the weight of the poise without altering the position of its centre of gravity. The pellets are retained in position by threaded plugs 6. Shells A, A¹ are made from a light metal alloy or plastic material, and are provided with coin slots 1b to facilitate disassembly.



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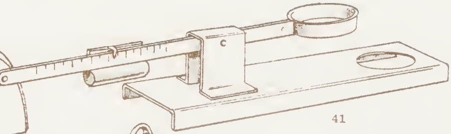

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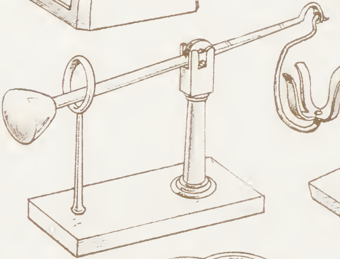

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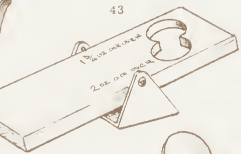

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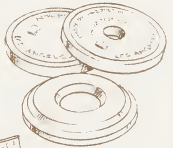

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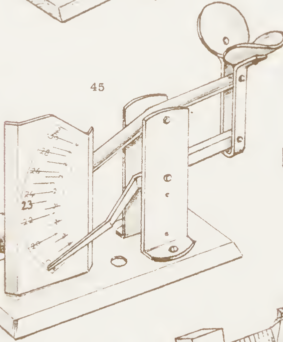

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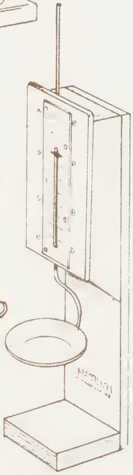

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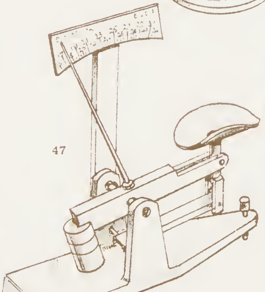

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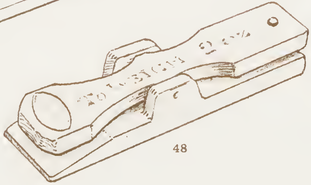

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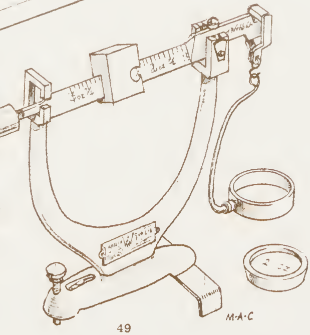

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Letters

I'm sorry, I cannot agree with your comments in EQM Review, on J.T.Graham's book (page 355), when you say that cased weights were rarely used on postal scales. I would say that cased flat weights were used very extensively on postal scales (for cheapness) and that solid brass weights were only used on the more expensive scales.

JOHN LOUND

I was pleased to read the generous review of my book Scales and Balances in the Summer issue of EQM, but shall be glad if I may reply to some of the points of interest raised by your reviewer.

I am aware that scruple weights should be found with apothecary scales, but in such a small book I had to omit some detail which, in any event, is to be found in my companion book Weights and Measures. I am sure that most of your readers, being already aware that scruples were only the denomination of a number of grain weights or multiples or parts of the drachm, will appreciate the reason for the omission.

Close examination of the illustration on page 8 of Scales and Balances, shows that Young & Son had another address in London and that the firm claimed to be scalemakers to HER Majesty. These two points tend to indicate that the scale illustrated could have been much later than the period 1812 - 27 to which your reviewer restricts it.

I do not think the Inverted Roberval was seen in this country until after the middle of the nineteenth century, so far as commercial use is concerned - as opposed to it being a scientific curiosity, and so your reviewer might only be objecting to my use of the word "invented" ?

I shall be obliged if your reviewer will kindly tell readers how one proves that cased weights were RARELY supplied with letter scales. My experience is that many are found with either cased weights or solid weights, or a mixture of the two, the assumption being that solid weights, being more readily available, have been used over the years to replace lost cased weights. It is hard to believe that suppliers of letter scales would prefer to provide solid weights when it was cheaper to make and supply cased weights with lead or cast iron cores. I am sure many of your readers will have been surprised by your reviewer's firm comment on this point.

TOM GRAHAM

REPLY

I am concerned that a reader of your book, whether a member of ISASC, or not, might remove scruple weights from his apothecary set, as being not relevant, and not original. I believe one should assume a reader does not know all the facts, hence the reason for reading the book. Surely, the compilation of the book could have accomodated the addition of two words 'and scruples', if necessary, at the expense of two other words ?

Inverted Roberval counter scales were being advertised for commercial use in 1828. You can see an illustration (one of several I have seen) in Bourne and Smith's advertisement of this date, in Old Advert, EQM page 136. There is no mention of its being new or novel in any way. In fact, they were already advertising their "improved" version. This suggests, to me, that they had been making inverted Robervals for some years before that date. How long before is a matter for speculation, until more evidence comes to light.

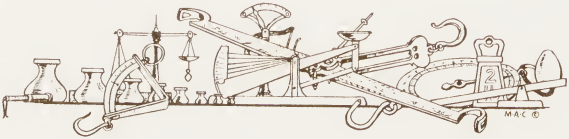
I am very red-faced over my careless assumption that the Young & Son label you illustrated was the classic label of 1812 - 27, and I apologise for my mistake. The clever way in which this label was modified to have Her instead of His Majesty, and 46 Cranbourne Street instead of Leicester Square, escaped my notice on such a small picture. I have the following dates for the use of the two addresses on your label, 1852 - 1905. Incidentally, this does show how useful a change of address, or label design, can be in dating scales; and how precise one's observation must be !

My comment about cased weights was based on experience gained handling literally thousands of letter scales at fairs, shops and in museums and private collections. The majority were sets with the largest weight being 2oz or 4oz, with some sets having an 8oz weight or larger.

The detection of whether a weight is cased, or not, by visual inspection is difficult, as you know. Some are obvious, others are not. I decided the only way to try and get some objective statistical evidence was to carry out hydrostatic tests of all my postal weights. These amounted to 81 weights of 1,2,4, & 8oz, from both cheap and good quality sets. My tests showed that some cased weights are impossible to detect visually, even with a magnifying glass. Concentric rings on the rim of the weight is a fairly good indication for weights of 4oz or more, but a significant number of ringed weights were NOT cased.

Only 1 out of 18 1oz was cased, 3 out of the 32 2oz weights were cased, 15 of the 25 4oz were cased and 5 out of 6 8oz were cased. Thus, one can draw the conclusion (tentative, because the number of weights tested was not statistically high) that the great majority of scales (91%) with weights of up to 2oz had all SOLID weights, and 9% had only one cased weight out of the 4 or 5 supplied. i.e. the 2oz was cased but the 1,½,½oz, or 1,½,¼,¼oz were solid. On sets with a 4oz weight, half (51%) had one cased weight and 9% had two cased weights out of the 5 or 6 supplied.

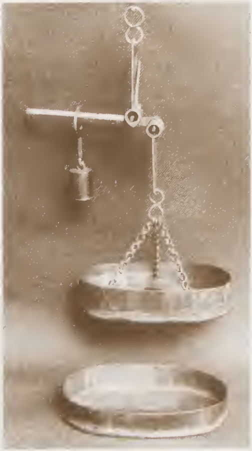
This seems to indicate that my "rarely" was overstating the case as much as your "usually" ! A full account of the tests can be read in the article 'Cased Postal Weights' on page 422, which article was sparked off by this correspondence !



Chick-Pea Scales

SUE BERASTEGUI

Scales for assessing the quality of chick-peas were made and used in Spain, and, apparently, nowhere else in Europe. The scales were pocket-sized steelyards with a single fixed or movable weight.



Before proceeding, perhaps I should explain what a chick-pea is. According to the dictionary, it is a *"plant, legume with hairy scissors case and two wrinkled fruits"*. This plant was brought to Spain from America, in the 15th century, together with potatoes. Unlike the potato, which spread throughout Europe, the chick-pea remained in Spain where it became the principle ingredient for the 'Cocido' (Andalusian stew and Madrilenian stew) The major production is in the basin of the river Guadalquivir, and it is here that the chick-pea scales were used. Surprisingly, when we tried to find their makers, all paths led to Barcelona, 1000 km away.

SIEVE No.	CHICK-PEAS PER ONZA
29	68 to 72
29½	60 to 65
30	54 to 57
30½	51 to 53
31	48 to 50
31½	45 to 47
32	42 to 44
32½	38 to 40

Chick-pea scales were used by wholesalers and farmers to check the quality of chick-peas which they were buying or selling. First, the chick-peas were passed through sieves, the best quality being sieve No.32½, and the poorest quality sieve No.29. These sizes were shown in a table in some scale boxes. Fig 2.

After sieving, the chick-peas were weighed to determine the quality, which was indicated by the number of peas required to exactly balance the scale. Forty chick-peas per onza was the best.

The scales were a type of steelyard with a fixed capacity of 1 onza (33gram). They were all small, ranging from 50 to 70mm long (2 to 2¾ ins), and most were without maker's marks. The pan was cleverly made to form half of the little box which contains the chains and the beam, a lid fitting on top for carrying. Materials used to make the scales were iron and brass, nickel-plated iron, and aluminium for the more modern ones.

We have found no patent for chick-pea scales, but it seems that they were made from the second half of the 19th century to the middle of the 20th century. After many years of searching, we managed to find a scalemaker who used to make chick-pea scales until about 1955. According to the stories told by old chick-pea merchants, these old balances were not very reliable, due to wear and damage received when they were carried in the pocket. Now, they use more sensitive balances similar to diamond scales.

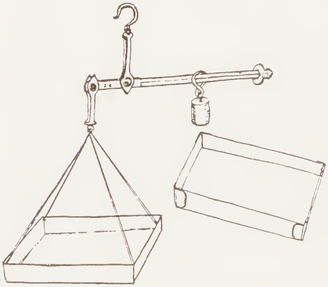
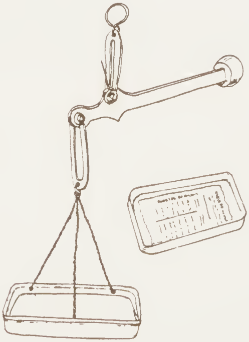


FIG 1. Chick-pea scale, unknown maker, 19th C. Steelyard with a brass weight, for which only one notch is provided. The beam and box are iron, the other pieces are brass. Beam marked J.G.1.

Chick-pea scale made by Castell, c1930. FIG 2. The brass beam and weight are in one piece. Other parts are iron, and the box is nickel-plated. A table of sieve number and chick-peas per onza is fixed inside the lid.



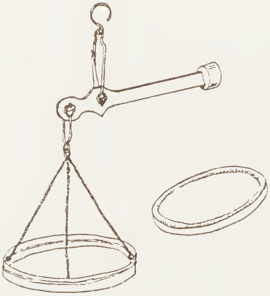


FIG 3. Chick-pea scale, unknown maker, similar to Fig 2, but made entirely from brass. More modern scales were similar in design, but had a nickel plated beam and aluminium pans.

DRAWINGS BY THE AUTHOR.

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Cased Postal Weights

MICHAEL CRAWFORTH

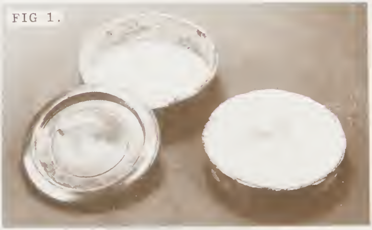


FIG 1.

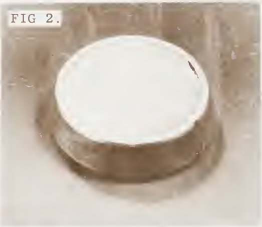


FIG 2.

Postal weights were often made of lead concealed in a thin case of brass. Apparently, the difference in cost of these metals was more than enough to offset the cost of the extra labour involved in making cased weights, in large quantities. Externally, the cased weights were usually identical to solid brass weights, and considerable effort was made to hide the joint where the case was closed. Nevertheless, careful examination will reveal traces on many examples. It has been said that concentric incised rings on the rim of a postal weight shows that it was cased, and that cased weights were largely made for cheap scales. It has also been said that letter scales were usually supplied with cased weights.

In order to find out more about cased postal weights, their use, and their identification, the author carried out hydrostatic tests and visual examination of over 80 postal weights from both cheap and expensive scales. Each weight was suspended, in turn, by a thin wire clip, from the beam of a sensitive equal-arm balance. The weight and clip were exactly counterpoised by masses placed in the pan on the other side. At this stage, it was interesting to note that errors in mass of the postal weights ranged over 19 grains on 4oz weights and 14 grains on 2oz weights.

WEIGHT DENOMINATION	INTENDED MASS IN AIR	MEAN MASS CORRECTION IN WATER SOLID	CASED	NUMBER OF WEIGHTS SOLID	CASED	No. OF WEIGHTS TESTED
1 oz	28.35g	3.45g	2.76g	17	1	18
2 oz	56.70g	6.75g	5.90g	29	3	32
4 oz	113.40g	13.00g	11.95g	10	15	25
8 oz	226.80g	27.50g	23.90g	1	5	6

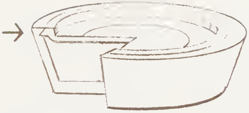


FIG 3.

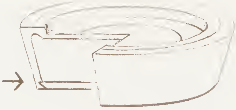


FIG 4.

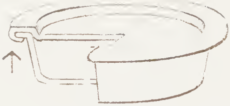


FIG 5.

After counterpoising the weight, it was completely immersed in water, and masses were added to the pan on the same side to counteract the effects of buoyancy, Fig 6. The mass required for this was the indication of whether the weight was cased or solid, because the buoyancy of lead is significantly less than the buoyancy of brass, due to the difference in density. 20th century trade weights were used as a datum for the solid weights. A summary of the results is shown in the table.

As each weight was tested, it was examined visually for indications of casing, quality and style. It soon became apparent that some weights were very obviously cased, some could be detected with difficulty, but others were completely undetectable, even with the aid of a magnifying glass. It can be seen from the Figs 3,4,& 5, that three different methods of construction were recorded:-

a) A brass cup was cast in brass and then filled with lead. A brass lid with a bevelled edge was then placed on top whilst the lead was still molten. When it was cool, the edge of the cup was turned over the bevel on the lid to hold it firmly in place. The outside of the weight was then finished off smoothly, an incised ring was cut to hide the joint, and other rings were cut for decoration. Fig 3. Then the weight was filed, or lightly turned underneath, to adjust to the correct mass. A weight of this type, with the lid and lead removed, is shown in Fig 1.

b) An inverted brass cup was made and filled with lead. A brass bottom with a bevelled edge was fitted and the edge of the cup turned over to retain it. The mass was then adjusted by filing across the bottom. Some examples had concentric rings on top, purely for decoration. Figs 2,4.

c) A thin cup was pressed or spun from sheet brass, leaving a horizontal flange around the top. Lead was poured in, or possibly pre-cast and placed in the cup. A brass lid was put on top and then the edge of the lid was turned under the flange, presumably by the 'metal-spinning' method, Figs 5,7.

FIG 6.

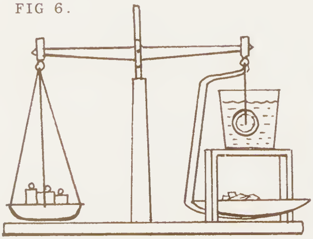
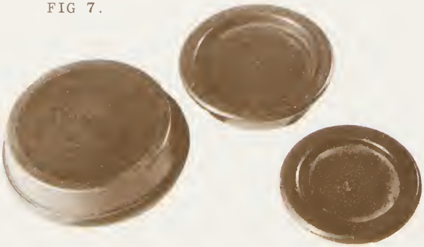


FIG 7.



Visual signs of casing arise from these methods of construction. Most of the 4oz weights with concentric incised rings were cased (88%), and the joint could usually be seen in the outermost ring either by the naked eye, or with a lens. Some of the weights with rings on top were actually joined on the bottom (35%), and the joint could be seen as a thin line, or as a boundary between brasses of a slightly different colour. Other 4oz weights with rings were solid (12%). Most of the 2oz weights with rings were solid, and all the smaller weights, with or without rings, were solid, with one exception.

Another indication of casing was the effect of denomination stamps. On some cased weights the brass surrounding the stamp was depressed into the lead. However, many of the weights appeared to have had the stamp applied before the weight was constructed, so the depression was avoided.

A few examples of cased weights could be detected by sound. Some had loose lead which rattled when shaken, others had a characteristic 'dead' sound when tapped gently with a solid weight.

The quality of finish was not a good guide to casing. Many of the highest quality of finish, for example those made by S.Mordan & Co., were cased, while some of the crudest were solid.

Size of weight had a bearing on whether it was likely to be cased, or not. Weights of 1oz or below were almost all solid (only one 1oz weight was cased). Only a tenth of the 2oz weights were cased, while over half the 4oz weights were cased. Five of the six 8oz weights were cased.

It would be unwise to draw more than a tentative conclusion because the number of weights tested was, statistically, not great. But it would appear that scales with weights of 8oz or more usually had some cased weights. More than half of the scales with a largest weight of 4oz, which seems to have been the most common size, had one cased weight. The next most common size, with the largest weight of 2oz, usually had all solid weights. Thus, as could be expected, the cost advantage of using lead applied to the larger weights.

SOCIETE METRIQUE DE FRANCE

This Society has a new section for collectors of scales and weights, to facilitate the exchange of knowledge and ideas, and to help members to sell or exchange their duplicate scales and weights. For details, write to: A.Pommier, 13 rue d'Odessa, 75014 Paris, France.

The Society publishes a newspaper, Le Système Métrique, containing articles and news items collected all over the world. It covers both modern and historical aspects of weights and measures, their origins and administration. It has photographs and drawings reproduced by electrostatic means. Written in French. Annual dues 35 F. Applications for membership to: La Société Métrique de France, 12 Quatrième Avenue, 77680 Roissy-en-Brie, France.

Patent Postals

MICHAEL CRAWFORTH

A SURVEY OF POSTAL SCALES PATENTED IN BRITAIN, 1840 TO 1940.

1855 16 Jun. No. 1374. J.Webster. See Fig 5.

A beam has the load plate suspended from one end and is attached to a coiled spring at the other end. A toothed quadrant, connected to the beam, rotates the pointer via a pinion.

Postal use was not specifically mentioned in the patent, but the apparent size of the scale and the design of the load plate and hanger, suggest that weighing letters was one of the purposes the inventor considered. The use of a light spiral spring to steady the rotation of the pointer is interesting. No example has been seen by the author.

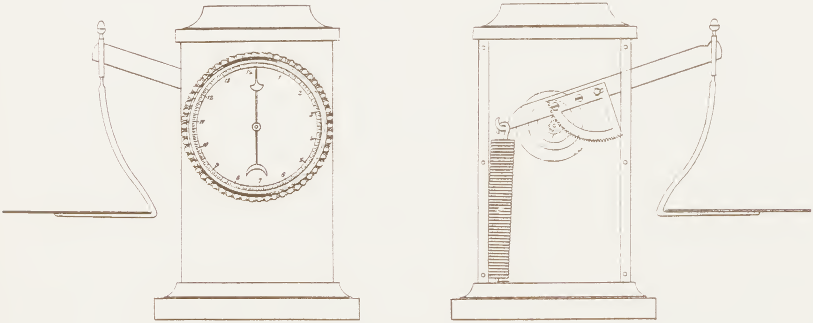


FIG 5. Webster's dial-face spring balance.

1855 15 Sep. No. 2087. G.Hamilton. (Provisional).

1856 2 Jan. No, 11. G.Hamilton. See Fig 6.

A tubular glass ring, half filled with coloured fluid, acts as an indicator. Applied to a pendulum balance with a disc acting as a bent lever, or beam. Both documents refer to the same idea.

Although postal purposes were not specifically mentioned in the specification, the drawing suggests that Hamilton considered letter scales as one possible application of his idea. The disc rotates on a central bearing when a load is placed on the plate suspended from a pivot on one side of the main fulcrum. A weight suspended from a pin on the perimeter of the disc, counterbalances the load. The patentee suggests that different weights could be hooked on the

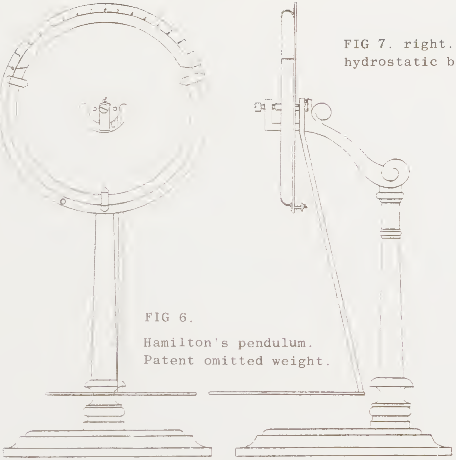


FIG 6.

Hamilton's pendulum. Patent omitted weight.

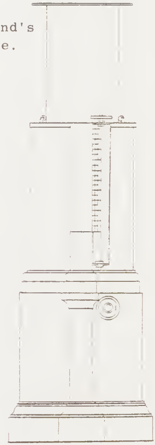


FIG 7. right. Armand's hydrostatic balance.

pin to change the weighing capacity. The glass ring is attached to the disc and is concentric with it. Graduations are marked on the perimeter of the disc, to be read against the top of the fluid. No example has been seen by the author.

1856 27 Nov. No. 2808. P.Armand. Comte de Fontainemoreau. See Fig 7.

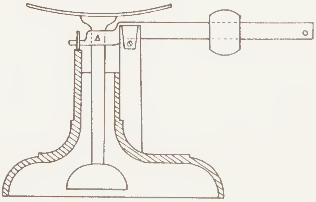
A hydrostatic weighing instrument in which the liquid acts as the weighing resistant and the indicator.

A letter plate is attached to the top of a cylindrical float immersed in a liquid. Another cylinder, which contains the liquid, has a tube connected at the bottom. This tube passes vertically up the outside of the cylinder and has graduations engraved on its surface. When the float is depressed by a letter, the liquid is displaced up the tube until a balance is achieved. The weight is indicated by the top of the liquid against the graduations. The illustration shows the postal version from the patent, but several other versions were included for weighing different loads.

1859 17 Dec. No. 2873. T.FAIRBANKS See Fig 8.

A typical Fairbanks postal steelyard was modified by this patent. The half-Roberval stay was replaced by a weight fixed to the bottom of the leg. The patent also incuded several refinements to the construction of legs and bearings.

The idea of a mass-stabilised pan was not new (It had been used in the 1840's by Isaac Brown and by R.W.Winfield, and probably by others before that), but its application to letter balances was patented in the document. The merits were simplicity and the elimination of stay pivot friction.



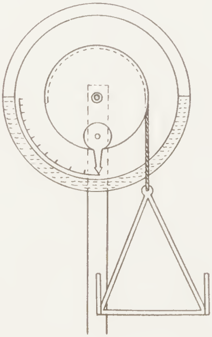


FIG 8. Fairbanks' mass stabilised pan steelyard.

FIG 9. right. Peppe's pulley pendulum with fluid level indicator.

1860 26 Jun. No. 1555. G.T.Peppe. See Fig 9.

A pulley wheel acts as a pendulum beam which is rotated by a cord that suspends the letter rack. Coloured fluid in a circular tube surrounding the pulley wheel indicates when the instrument is level.

The use of a fluid level indicator may have been more for aesthetic reasons than for functional advantage. The weighing resistant is a loaded pointer fixed to the bottom of the pulley wheel. A free-swinging letter rack must have been an irritating inconvenience. No example has been seen by the author.

1862 14 May. No. 1456. A.Smith. See Figs 10 & 11.

A small bismar with letters suspended in a loop of elastic cord, or a spring clip.

The patentee suggested that the beam be made of wood with a heavy material let in to the weighted end of the beam. A small finger loop was used as the fulcrum, and was moved to graduated notches under the beam. A table of postal rates could be attached to the weight. It was a novel idea to suspend the letter in a flexible loop, held by a sliding bead.

R.K.Wortley illustrated a slightly different version, Fig 11, which had five separate cord loops, one for each weight denomination. It was made of Dunkeld wood and sold by McLean & Son, publishers, of Dunkeld, Scotland. Length 5¼ins. (133mm). The table of postage rates covered India and Australia via Marseilles 9d per ¼oz, via Southampton 6d per ½oz, to France 4d per ¼oz, to Canada 6d per ½oz and to the U.S.A. 1s.

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QUARTERLY MAGAZINE OF THE INTERNATIONAL SOCIETY OF ANTIQUE SCALE COLLECTORS

ISSUE NO. 1 1982 PAGES 401-428

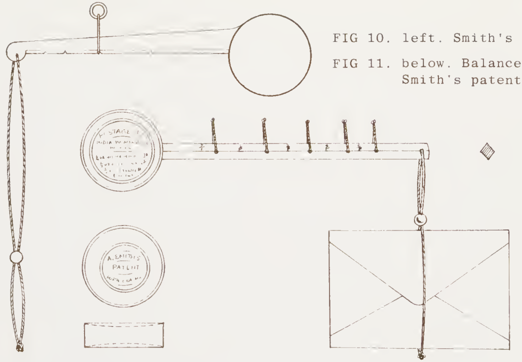


FIG 10. left. Smith's bismar.

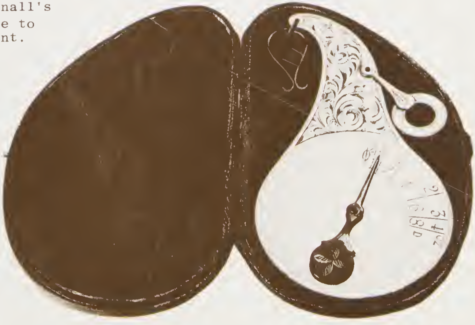
FIG 11. below. Balance made to Smith's patent.

1863 26 Mar. No. 791. N.R.Hall. See Fig 12.

A flat pear-shaped pendulum beam with a spring letter clip. Weight is indicated automatically by a pendulous pointer.

These successful little pocket balances were made steadily from 1863 to the early 20th century, and had the marks of various firms, Parnell, J.Cooke & Sons, J.Heeley & Son, Perry & Co. There was even a large version mounted on a pillar for weighing parcels, and L.Sanders recorded a variation for anglers to weigh fish. The majority of the letter balances were plain, but some were attractively engraved. They were supplied with a flat leather wallet or a hinged box of kidney shape. Hall took out another patent in 1866 for a modification to this design (and another in 1869 for a form of bismar). (Further illustrations can be seen in EQM, page 199).

FIG 12. Parnall's balance made to Hall's patent.



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QUARTERLY MAGAZINE OF THE INTERNATIONAL SOCIETY OF ANTIQUE SCALE COLLECTORS

1982 – ISSUE NO. 2

PAGES 429-456

Editor's Comment

John Haigh's most interesting account of the formation of a Weights and Measures administration in South Africa, (page 439) raises the important issue of *recording relatively recent events*. The development of modern society has been so rapid that previously commonplace events soon disappear from general knowledge. It is astonishing how soon information can be lost entirely, as John found when he was unable to discover any information about the assize of Weights and Measures before 1910 !

The South African experience was surely not unique to that country. Many of the problems and solutions must have been very similar to those encountered by any country struggling to establish uniformity and fair trade.

Cover Picture

This German hunting scale is the earliest mancur balance which can be dated. The maker was probably J.G.Sessler of Mayntz, who died in 1769, but he made the mancur for the Elector, Johann Friedrich Karl von Ostein, who died in 1763.

The mancur has a wooden box covered inside and out with red leather. The top of the box has the Coat of Arms of the Elector in gold and yellow, and his gold tooled monogram powders the underside. The hooks detach to be stored in the bottom of the box under the flap of leather. The spring is stored on top of the flap. The brass arc is engraved "Wagt 6. Centner jeden zu 100" (Weighs six centner by 100's - i.e. about 6 hundredweights.). See article on page 431.

The mancur belongs to the *SCHLOSSMUSEUM, ASCHAFFENBURG*, to whom we are indebted for the excellent photograph.

INTERNATIONAL SOCIETY OF ANTIQUE SCALE COLLECTORS
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Mancur Balances

MAURICE STEVENSON

Of all the pieces of old weighing equipment which turn up, from time to time, the so-called 'Mancur' balance is the one most frequently "discovered", and the one to which most attention is usually given in any display of old weights and measures. Considering the comparatively recent period to which it has been assigned, it is surprising that so little is known about its origins, makers and peculiar name.

Commentators on the history of the spring balance (see References) have said that large numbers of mancurs were made in America and Europe during the latter half of the nineteenth century, and that they were used by farmers. Some elderly British farmers can also testify to their use within living memory, and one, who originally farmed in the West Country, told the author that he knew the balance under the name of "stilliard". Also, in England, country people called it a "gipsy scale" until recently. In France and Germany, it was called a "crescent-moon scale" (demi-lune; mondwaage). Could it be that a French expression was also the origin of the name mancur ? Perhaps it was a corruption of a compound word or phrase derived from "main", signifying that it was hand-held or easily portable.

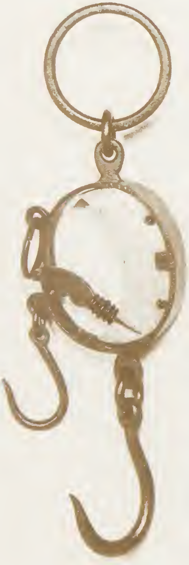
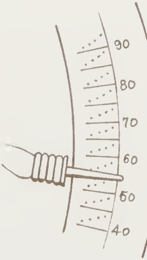


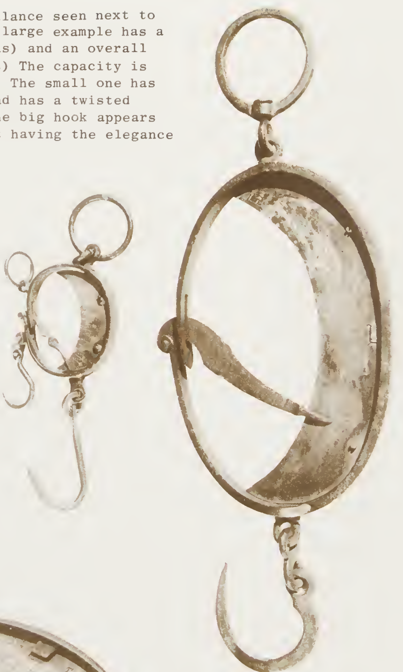
FIG 1. Typical mancur balance, brass arc is marked 1 to 34 and 10 to 200 (lb). Trade mark of P.L.Schmidt.

The use of spring metal for balances was recorded in the late 17th century and the sector, or Vee-spring type, is known to have been in production around 1750. The helical type was being manufactured by Richard Salter in West Bromwich, England, c1770, and, by the turn of the century, steel strip was bent into various other shapes, as weighing resistants.

Mancurs which can be dated show that they were developed much earlier than had hitherto been supposed. A well-made mancur was in the collection of instruments accumulated by George III, reputedly as scientific 'toys' for the education of his children. It was catalogued as 'Wiedemann's stilliard' and was added to the collection in the late 18th or early 19th century. Ernst Schneider described a German mancur balance of high quality, contained in a fitted box bearing the coat-of-arms and initials of the Elector, Johann Friedrich Karl von Ostein, 1743 - 1763, (see Cover Picture). It had removable suspension and load hooks stored in the bottom of the box, which was covered with elaborately tooled red leather. This mancur weighed up to 6 centner and was used on hunting expeditions. Another mancur hunting balance, described by J.S.T.Sehlars, had a capacity of 550 pfund and was signed by Georg Sessler of Mayntz, who was recorded as working in 1752, and died in 1769. From this evidence the mancur must have been invented before 1763.

FIG 2. A giant mancur balance seen next to a standard balance. The large example has a spring 280mm high (11 ins) and an overall length of 550mm (21½ ins) The capacity is 300 kg, maker P.Dumaine. The small one has a capacity of 200 kg and has a twisted wrought iron pointer. The big hook appears to be a replacement, not having the elegance of the small hook.





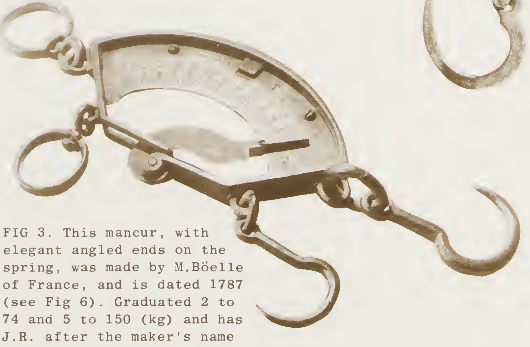


FIG 3. This mancur, with elegant angled ends on the spring, was made by M.Böelle of France, and is dated 1787 (see Fig 6). Graduated 2 to 74 and 5 to 150 (kg) and has J.R. after the maker's name in large letters.

The principle of the mancur was simple but ingenious. When the oval spring was pulled open by the load, the indicator was moved upwards by the interaction of the two ends of the spring. The indicator moved over a crescent-shaped brass plate marked with either one or two sets of graduations. These varied according to the capacity and units of weight, many being in kilograms. In English examples known to the author, graduations ranged from 0 to 35lb to 0 to 60lb on the 'light' side (i.e. for use with the smaller hook and ring), to 0 to 180lb and 0 to 350lb on the 'heavy side' for use with the large hook and ring. Subdivisions on the light side were marked by a line at each 5lb and by diagonally spaced dots between the lines, at each 1 lb. On the reverse, line divisions were marked at 10lb or 20lb intervals, with intermediate dots marking each 2lb. A French catalogue of the 20th century lists mancurs with capacities of 50,100 150,200,300,or 400kg. They appear to have been used in other countries, too. A Polish example is in the Warsaw Museum, and a Russian one had graduations of 10 to 120pud.

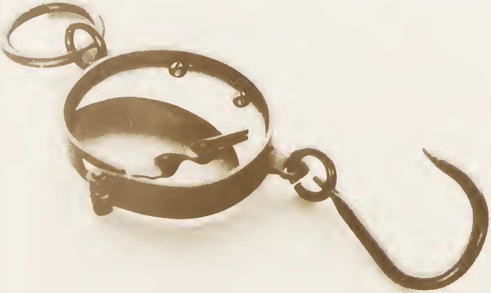


FIG 4. A single-hook mancur with graduations 0 to 56 (lb)"ENGLISCH"

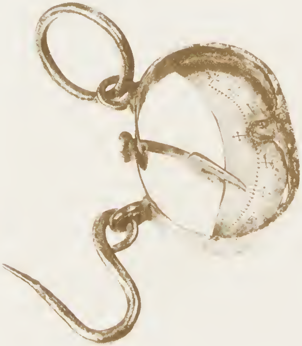


FIG 5. A small mancur 83mm high, marked with a cross at every 6 units.

As for the construction of the balance, although most examples appear very similar, at first sight, differences are detectable on closer examination. There are differences in spring shapes and sizes, different indicators, some of which are nicely cast, others are simply twisted from strips of metal, Figs 2 and 4, and so on. This is not surprising in a hand-forged product where differences in the strength of springs, and difficulties in setting the indicator with the correct leverage, must have been considerable.

The most common mancur balance had an oval spring about 100mm high (4 ins), and had two suspension rings and two load hooks. However, some examples had only one ring and hook, like the small one only 83mm high (3¼ ins) shown in Fig 5, or the giant example 280mm high (11 ins) by P.Dumaine, Fig 2. This balance had an overall length of 550mm (21½ ins)! Several did not have an oval spring, but had elegantly angled ends, one by M.Böelle of France, being dated 1787, Fig 3.

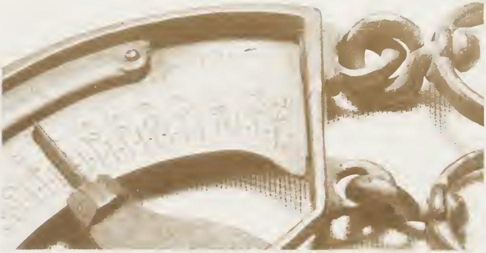


FIG 6. Detail of the balance shown in Fig 3, showing the date 1787 and the swivels on the suspension loops.

George Salter & Co., of West Bromwich, made mancur balances of a different construction. The spring, instead of being made from a flat strip of metal, was round in section and had loops formed into it for the ring and hooks (see Old Advert, page 438). This design was unusual in having only one suspension ring which was used with both hooks. It was illustrated in the Salter & Co catalogue of 1893, and an example can be seen in the Avery Historical Museum.

Surprisingly, mancur balances were still being made in the mid 20th century; new ones were being offered for sale in Austria as late as 1970. They were also shown in the catalogue of the famous French manufacturer, Testut of Paris, around 1965, where they were listed for use as tension testers. Mancurs were listed for kitchen use in the Crowden & Garrod catalogue, London 1895. Presumably, they were intended for large country houses and restaurants, where large carcasses of meat were handled. They were said to be used in England by farmers for weighing pigs, sheep and bales of hay; in America for weighing animal skins, which led to the name 'hide-scales'; and in Europe for hunting and for farm use.

None of the examples seen by the author carried a maker's name, but one had the word 'ENGLISCH' stamped alongside the graduations, Fig 4, indicating German manufacture. One or two examples have been seen with a mark resembling the Masonic symbol, a set-square and dividers, Fig 1, impressed on the 'heavy' side of the graduated crescent. This trade-mark has been traced to Peter Ludwig Schmidt, and it was registered by Johannes Schmidt in 1876. Johannes stated that the mark had been used by their company, and its predecessors, since 1790. Several maker's names have been recorded by Michael Crawforth from examples seen in England, Germany and America, see page 435.

The lack of an official stamp on surviving English examples is not surprising, as weighing devices did not require an Inspector's stamp until the Weights & Measures Act of 1889. In any case, regulations made pursuant to the Act, would not have permitted the stamping of such balances for trade use. That is the probable reason for the disappearance of the mancur, in England, from about 1890 onwards.

NAMES SEEN ON MANCUR BALANCES

BOELLE. M. St.Christophe, France.
BOKER. Henry, Germany.
BOKER. H. & Co.
DUMAINE. P.
H. & M.
HILGER & SONS.
JUNG. C.
KLEUSER. W.
LEBOUCHER. W.
LOCKHAUS & GUNTHER, Remscheid Germany.
R.S.
SEERS.
SCHMIDT. Peter L. Elberfeld, Germany. (trade mark only)

The author would welcome comments, information or criticism from readers, with a view to clearing up some of the mystery surrounding the mancur balance.

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SCHNEIDER.E. 'Eine Schnellwaage aus Kurfurstlich Mainzischeim Besitz.'

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ACKNOWLEDGEMENT

The author is indebted to Michael Crawforth for substantial additional information which has been incorporated into the article since it appeared in LIBRA, Vol.10 No.1 p7-12, April 1972.

Solution to a Weighty Problem

Number the coins 1 to 8, then carry out the initial weighing, as described below. Then there are four alternative solutions, depending upon the results of the initial weighing :-

1. INITIAL WEIGHING: Weigh 1,2,3 against 4,5,6.

   FIRST ALTERNATIVE: The scales balance level. Therefore 7 or 8 is incorrect, and all the others are normal.

2. Weigh 7 against 1; if 7 is incorrect, the scale will show if it is light or heavy. If the balance is level then 8 must be incorrect.

3. Weigh 8 against 1, and it will show light or heavy. ▷

SECOND ALTERNATIVE: 1,2,3 tip the scale down. Therefore 7 and 8 are normal and either 1,2,3 is heavy OR 4,5,6 is light.(if 4,5,6 tip the scale down, the procedure is similar).

2. Weigh 1,2,4 against 5,7,8. If 1,2,4 tip down, then either 1 or 2 is heavy, OR 5 is light.

3. Weigh 1 against 2; if the scale tips, then the heavy side has the incorrect coin. If the scale balances level, then 5 is light.

THIRD ALTERNATIVE: 1,2,3 tip the scale down, as in the Second Alternative.

2. Weigh 1,2,4 against 5,7,8 as before, but if the scale balance level, then either 3 or 6 is incorrect.

3. Weigh 3 against 1. If 3 is heavy it is the incorrect coin. If they balance level, then 6 was light.

FOURTH ALTERNATIVE: 1,2,3 tip the scale down, as in the Second Alternative.

2 Weigh 1,2,4 against 5,7,8 as before, but if 5,7,8 tip down then 4 is light.

The editor thanks John Strong for the above solution to the Weighty Problem posed in Equilibrium on page 394.

Showcase

1. 'Airweigh' letter balance marked "Made in England". Cast iron base, brass scales and weights. Letter rates 2oz 2½d; 4oz 4d; 6oz 5½d, etc. Length of base 227mm (9ins).

BOB STEIN COLLECTION

2. Nuremberg 'lion scale' with pans marked JFM and a man with a sickle*. The lion is pulled to raise the scales for weighing. There are 34 brass weights for European coins. The box is 250 x 180 x 45mm (10 x 7 x 1¾ins).

WERNER BURGAUER COLLECTION

3. Silver postal scale, spring type, with a drawer in the base for stamps. The balance is hall-marked and has the design Registration number 308820^{+}

BRIAN BRASS COLLECTION

4. Slotted iron weights of 4lb and 7lb, marked "H.M. Gov^{t}"

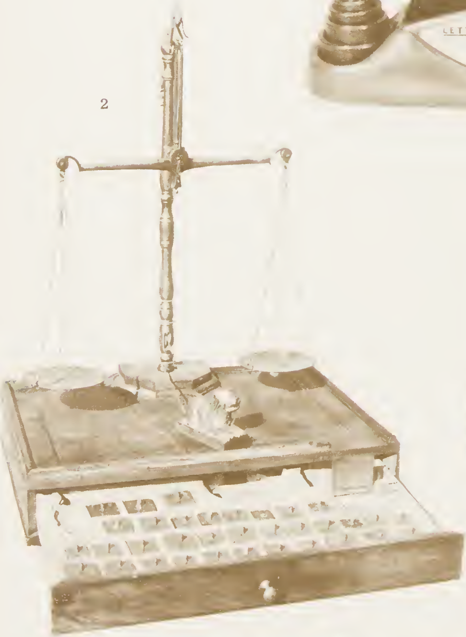
LOU UIT DEN BOOGAARD COLLECTION

** The mastersign of Johann Friedrich Mayer, 1775 - 1803.*
+ Registered in 1897.

Photographs for SHOWCASE should be sent directly to the Editor (address inside the front cover). Please send black & white negatives 35mm, if you can.

SHOWCASE

1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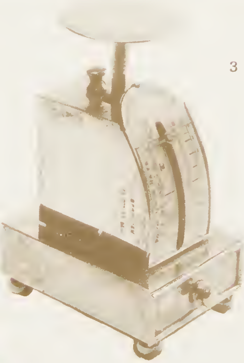
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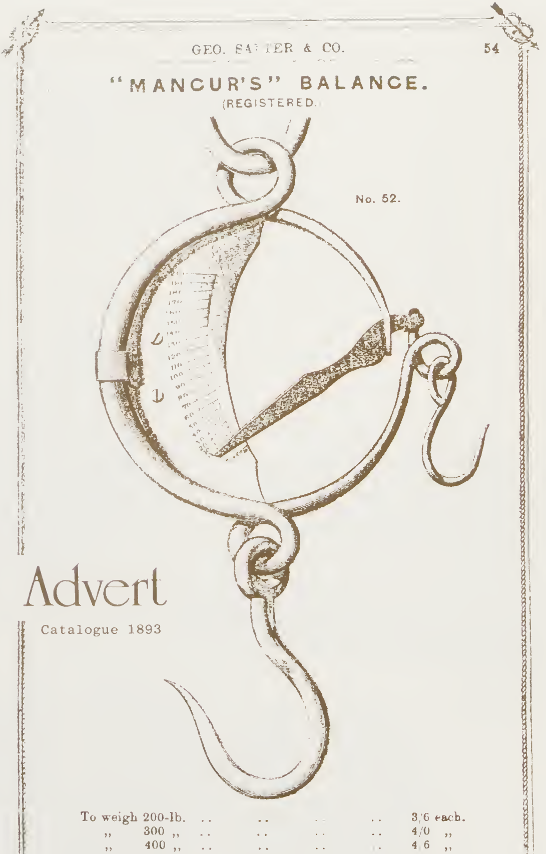


GEO. SALTER & CO. 54

"MANCUR'S" BALANCE.

(REGISTERED.)

No. 52.

To weigh 200-lb.	.. ..	3/6 each.
,, 300 ,,	.. ..	4/0 ,,
,, 400 ,,	.. ..	4/6 ,,
,, 500 ,,	.. ..	5/6 ,,

For light weights the small hook is used, and the marking is on reverse side of plate.

Old Advert

Catalogue 1893

Weights & Measures Control in South Africa

JOHN HAIGH

The Union of South Africa, a self-governing Dominion and a member of the British Commonwealth of Nations, was born when the self-governing British Colonies of the Cape of Good Hope, Natal, Transvaal and the Orange Free State (Orange River Colony), were joined in a legislative union on the 31st May 1910. Fifty-one years later, the Union became the Republic of South Africa, after a public referendum, held in 1960, had shown considerable support for the idea, in addition to pressure from within the Commonwealth. Thus, there are three significant periods in the history of Weights and Measures administration :- The Colonial period before 1910, about which little is known until more research can be done; and the periods 1910 to 1960 and from 1960 onwards, which are covered in this article.

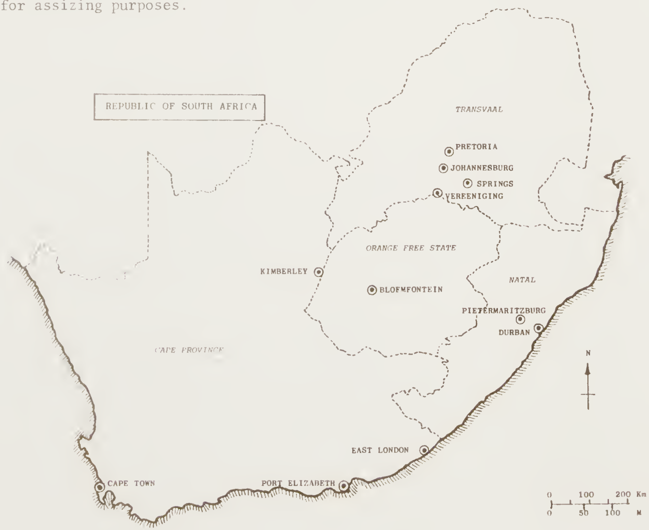
Before the Union was created, a Municipal Assize Department was established in Johannesburg, in 1902. This organisation was probably the first in South Africa to employ qualified personnel to assize the scales, weights and measures used for trade. The Johannesburg Assize Department was responsible for a number of towns in the Transvaal, including the whole of the Witwatersrand area. Some years later, Assize departments were established in Pretoria and Durban, and some supervision was exercised in Cape Town. Any assizing in the other parts of the country was of a very elementary nature and was mostly confined to the testing of small scales and weights used in trade.

The desirability of using uniform weights and measures throughout the country, had been recognised by the commercial and agricultural communities long before the advent of legislation. In the absence of legal requirements, the commercial and agricultural organisations were successful, to some extent, in fixing standards of weight for commonly-used commodities packed in bags. These standards were adopted by those Municipalities which had assizing departments and were of great benefit to the purchasing public. It was soon apparent, however, that the absence of uniform regulations had serious disadvantages. In the interchange of goods between Provinces, there were frequently large discrepancies in the weight of goods dispatched and received. Also, a country manufacturer of wheaten meal, for example, could compete on unequal terms with a miller situated in an area where the weight was fixed by regulations, by dis-regarding the standard weight which he was only morally obliged to recognize.

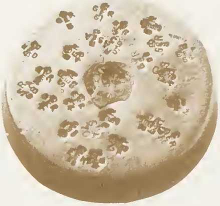
This situation was remedied by Act No.32, of 1922, the purpose of which was to remove such unfair practices in trade and to apply a uniform system of weights and measures control throughout the country. The laws in force in the several Provinces were consolidated under this Act. State control was adopted and the new Assize Division was established under the Department of Mines and Industries, (and was later transferred to a new Department of Commerce and Industry).

Weights and Measures regulations, framed as a result of the 1922 Act, were substantially based upon the old Assize by-laws of the Municipality of Johannesburg, and they came into force on the 27th April 1923. Officers from the Johannesburg, Pretoria and Durban Departments formed the nucleus of the new Assize Division.

For administrative purposes, the country was divided into six assize districts - Pretoria, Johannesburg, Durban, Port Elizabeth, Cape Town and Bloemfontein, with headquarters at the aforementioned centres. The Assize Division had to be built from comparatively few experienced and qualified officers and much new ground had to be covered in the process of administration. Consequently, for the first year, little more than two thirds of the country was visited for assizing purposes.



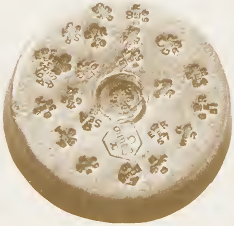
In the initial stages of the work, the Division was greatly hampered by the lack of suitable transport facilities. For the most part, railway transport was relied on and, in addition, any casual transport which could be arranged for visiting places situated some distance from the railway. Due to the very slow progress of the work, carrying heavy equipment on inflexible railway systems, and the difficulty in making assize arrangements to fit in with train times, motor transport was used increasingly from 1924 onwards. This resulted in a more efficient service to the country areas.



In order to provide better service to traders in the East London area, a new assize district, with headquarters at East London, was added in 1924, bringing the total number of districts in the country to seven. Many of the magisterial areas in the Transvaal, Natal, Orange Free State and the Cape of Good Hope were authorised to enforce assizing under the 1922 Act. Then, in Proclamation No.29 of 1927, all remaining magisterial areas in the country received the same authorisation.

In rural areas, where no assizing had been carried out before, many of the weighing instruments were found to be either obsolete and useless, or in such an unsatisfactory condition that it was impossible to weigh accurately on them. The number of rejections was high in spite of the policy of the new Division which was to give a liberal interpretation of the regulations. In places where some form of assizing had regularly been carried out by unqualified personnel, several weighing instruments were found to be seriously unjust without the knowledge of the owner or user. This was largely due to the mistaken idea that all platform scales had the same mechanical lever ratio and that it was merely required to see that the scale was in balance in order to indicate correct weight. It was found, however, that some weights were so incorrect that a farmer selling wool or tobacco to a storekeeper would have lost as much as 25lb on 1000lb. On the other hand, a storekeeper might, unconsciously, have been giving a corresponding overweight to his customers.

Instances were discovered where unscrupulous traders kept two different sets of proportional weights for platform scales; a loaded set for buying, and a light set for selling. With compulsory assizing and testing by qualified inspectors, the chances of such fraudulent practices going undetected, were greatly reduced. The condition of weights and measures used in many country areas, where no proper assizing had been carried out before, was extremely



bad. It was exceptional to find one pound weights weighing more than 15 ounces, while the 'gallon' measure was often a discarded American petrol can with a capacity of about $^5/_6$ths of the required Imperial gallon.

The records show that the amount of work connected with assizing and re-assizing mounted over the years, requiring a regular increase of qualified assizers. As a consequence, the other, equally important aspect of the work - inspection - was not given the attention that it should have received. Unless regular assizing can be followed by organised and surprise inspection to ensure that appliances have been assized and are not put to improper use, and that the weight of goods made up, sold or delivered to purchasers are correct, the protective value to the purchasing public will be greatly reduced.

During the first year of the new Assize Division, little attention was given to inspection. The subsequent appointment of four regular inspectors resulted in this important aspect of the work receiving greater attention in urban areas where assistance could not be obtained from the police force.

The Act of 1922 made provision for policemen to carry out inspections, and arrangements were completed in 1926/27 for using their services, principally in country districts where the regular Inspectors of Weights and Measures were unable to perform the necessary service. In 1931, police assistance was withdrawn and the Assize Division had to assume full responsibility for inspection in all areas of the country.

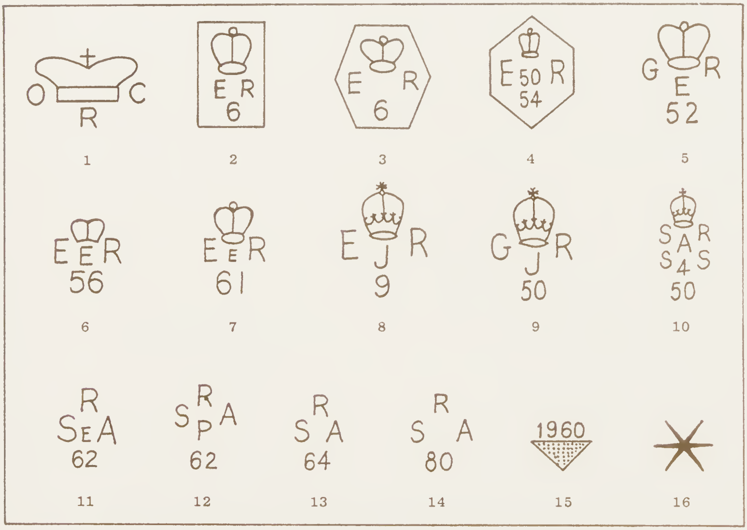
The number of assize districts remained constant until 1938, when a sub-office under the Durban district was opened in Pietermaritzburg. Additional districts were established in 1959/60 with headquarters at Kimberley, Springs and Vereeniging, and the sub-office at Pietermaritzburg received full status. These extra districts were required mainly as a result of the extensive industrial and commercial expansion which took place after the Second World War, and in order to provide the public and manufacturers of goods, with the necessary protection.

In 1973, the Trade Metrology Act, No.77, repealed and replaced the 1922 Act and all its amendments.

VERIFICATION MARKS

PRE-UNION (pre 1910). The only pre-Union mark that the author has seen is the Orange River Colony mark illustrated in Fig 1. This mark is on two round flat brass weights of 1 lb and 8 oz. On each weight there is another verification mark, Figs 2 & 3. These are Edwardian, and almost certainly British, because South African marks of this style were reserved exclusively for scales (see below). If these are British marks for the Birmingham district, the weights were probably made and assized in the United Kingdom and then exported. The ORC mark must, therefore, have been applied shortly afterwards before the formation of the Union, in 1910. There are no maker's marks on the weights.

UNION (1910 to 1960). Marks on scales were of the kind illustrated in Fig 1. This particular stamp was used in 1954 and belonged to inspector No. 50. The outer shape of the stamp varied from year to year and could be round, square, pentagonal, rectangular, oval or hexagonal. These enclosed stamps were reserved for assizing scales only.



On weights, the marks used were of the kind shown in Figs 5 to 9. They were not enclosed, and comprised a crown, Royal cypher, a letter and a number. The design of the crown varied considerably, as can be seen in the drawings. The letter signifies the town where the weight was assized (see Table), and the number is the abbreviation for the year of assizing and is obviously related to the monarch's reign as shown by the cypher. Here, a certain amount of confusion can arise. As can be seen from Fig 8, the number is a 9 which refers to the date 1959. This can be deduced from the fact that the Royal cypher is ER. Elizabeth II came to the throne in 1952 and the verification marks were changed in 1961, when the Republic was formed.

During the reigns of George V and George VI, similar marks were used with GR as the royal cypher. Of all the weights seen from these reigns, the dates had both numbers of the second part of the date, e.g. 46 for 1946. It therefore seems unlikely that any confusion can arise due to the lack of the monarch's V or VI in the stamp.

Figure 10 shows a verification mark used by inspectors who were employed by the South African Railways (SAR). The letters SAS stand for Suid Afrikaanse Spoorwee (the Afrikaans equivalent of SAR). There were four of these inspectors who later joined the Assize Division. The number 4 represents the personal number of one of these inspectors, and the 50 represents the year 1950, when the weight was verified, or assized.

REPUBLIC (1961 onwards). The distinction between marks used on scales and weights was retained when the Republic was formed in 1961, i.e. marks on scales were enclosed in a circle, square, hexagon, etc, while marks on weights were not enclosed. In 1962, the crown and Royal cypher were abolished in South African stamps, and marks of the kind shown in Figs 11 & 12. were used. The letters RSA stand for the Republic of South Africa. The fourth letter represents the town of assizing, as shown in the Table, and the number represents the date. After 1963, the letters in the centre of the mark, referring to the town, were omitted, as shown in Figs 13 & 14.

SOUTH AFRICAN DISTRICT STAMPS

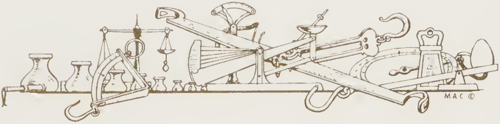
LETTER CODE

B - Bloemfontein
C - Cape Town
D - Durban
E - Port Elizabeth
J - Johannesburg
K - Kimberley
L - East London
M - Pietermaritzburg
P - Pretoria
S - Springs
V - Vereeniging

MISCELLANEOUS MARKS. Some marks were used by the assizing offices during both the Union and Republican periods. Figure 15 shows the mark used on Standards belonging to the Assizing Office. A square has sometimes been used instead of the triangle placed below the year of certification. Figure 16 shows the rejection mark which was placed on any scale or weight which did not conform to the statutory requirements.

ACKNOWLEDGEMENTS

The author thanks Mr.L.Schwultz of the Department of Industries, Commerce and Tourism, who supplied most of the information contained in this article, and Dr.C.Hummel of Rhodes University, who checked the historical aspects.



Notes & Queries

NQ 57 DIAMOND SCALES (NQ 40) reply from G.M.M.Houben.

The ruttee was used in India for weighing diamonds, gold and silver, until 1930. The mass was different in various parts of the country; in Rangoon the ruttee was equal to 182.4mg, and in Bengal it was 187.7mg.

NQ 58 ROBERVAL (LETTERS page 197) note from H.Jenemann.

It was in the year 1670 that Roberval's report appeared in the 'Journal de Scavans':- "Mais M.de Roberval a fait voir à l'Assemblé qui se tient à la bibliothèque du Roy une nouvelle manière de Balance qu'il a inventée il y a long temps..." (Roberval presented to the Assembly, which was held in the King's library, a new type of balance which he had invented a long time ago).

The report does not include a date for the invention, or for the meeting in the library, but it may be supposed that if the report was published on 10th February 1670, the assembly took place some time before - surely in 1669 ? The precise date is not proven, but Charles Testut, who gave a very good history of the balance and weighing in his book 'Memento du Pesage', states on page 72, that Roberval gave his report in 1669.

NQ 59 SPANISH SCALE (ARTICLE p.307) - GERMAN SCALE note from W.Burgauer.

In the article there is a description of a 'Spanish' scale. I possess an identical type. It corresponds exactly with the description, with the exception that on the bottom it is marked FAVORIT instead of LA INFALIBLE, and where the Spanish scale is marked PATENTADA mine reads D.R.G.M. It was for weighing silver coins ½,1,2,3 and 5 Marks of the German 'Kaiserreich' period, which suggests a date of manufacture early this century. Fig 1.

N.B. The editor has a very similar balance for 5,10 and 20 Francs, marked Deposé, Numismetre, "Etalon" CEM. Fig 2. Was the Spanish patentee the originator of this style ?

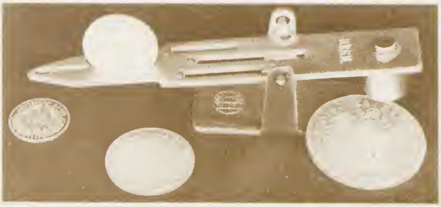


FIG 1

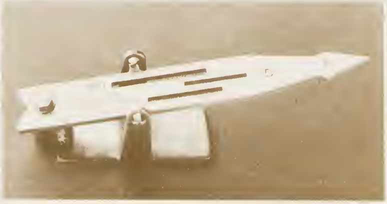


FIG 2

NQ 60 JOHN SHELDON query from L.A.uit den BOOGAARD.

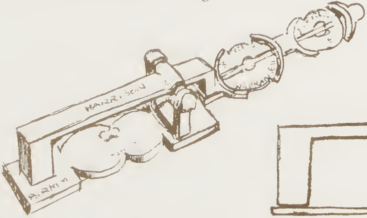
So far, I know that nothing has been written about Sheldon, the manufacturer of those very nice small postal balances made in many models and combined with pens and pencils. Can you tell me where I can find out something about him ?

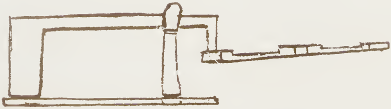
REPLY from the Editor.

At the Great Exhibition of 1851, John Sheldon was listed as an "inventor, manufacturer and exhibitor of ever-pointed pencils with half-sovereign gauge, letter and coin balances, maker of pencils, pen cases, steel toys, toothpicks and gun-powder flasks." He had five addresses, at different times, in Birmingham, and one of his advertisements stated that his business was established in 1824. Another stated that the firm was "Late Sheldon & Smith." Between 1842 and 1853, John Sheldon obtained five Design Registrations for variations of his letter and coin balances combined with pens, pencils, toothpick, penknife etc.

NQ 61 RARE ROCKER BY HARRISON note from J.Visser.

My current stock includes a sovereign balance by Harrison, Birm^{m}. which has the conventional design of coin platters attached to an unusual stepped rectangular beam, as shown in my drawing. It has a longer base and high columns. The overall length is 110mm.





NQ 62 N.B. AND S.G.D.G (NQ 49) reply from H.Gacon.

I have an answer to NQ 49. The initials N.B. were used by Narcisse Eugene Briais, a nineteenth century scalemaker who made a lot of postal scales and had many patents.

Bté. SGDG meant 'Brevete Sans Garantie Du Gouvernement' i.e. Patented without any guarantee from the Government. This was the usual expression for all patents in France.

ALL NOTES, QUERIES AND ARTICLES SHOULD BE SENT TO THE EDITOR.

Making Scales

ILLUSTRATIONS SUPPLIED BY
EMIL COHN JNR.
COMMENTS BY M.A.CRAWFORTH

The following illustrations are further extracts from "*PROGRESS OF THE WORLD - INVENTIONS, ENGINEERING, SCIENCE, MANUFACTURING, INDUSTRIAL DEVELOPMENTS.*", published in Chicago and New York, Vol 17. (1915). It appears from Plate 3 (EQM page 336) that the scales were being made in the works of John Chatillon & Sons of New York.

PLATE 6. ENGRAVING A METAL DIAL FOR A SPRING SCALE

Eight concentric rings of holes in the dividing disc enable many differently spaced divisions to be engraved. The guide for the engraving tool is moved round the required number of holes, a peg is placed through the guide into the relevant hole to locate it while the mark is cut. The large size of the dividing disc ensures accuracy.

PLATE 7. ASSEMBLING PANS AND BOWS FOR SPRING BALANCES

The bow hangers have small balance balls below the suspension hook for final adjustments. If the pan was light, lead shot was put inside the ball. This is not normally seen on spring balances, but was required here to compensate for the unpredictable weight of the porcelain plates fixed in the pan recess.

PLATE 8. ASSEMBLING SMALL SPRING PLATFORM SCALES

The short pillar scales were for use in retail stores, but the tall machine in the centre of the picture appears to be a person scale. Note, in the foreground, the large bar weights for testing the scales. The man on the right is adjusting an "even-balance market scale" patented on 19th September 1893. The half-Roberval linkage is attached to a spring and dial face. A calendar on the wall shows the date to be 1915.

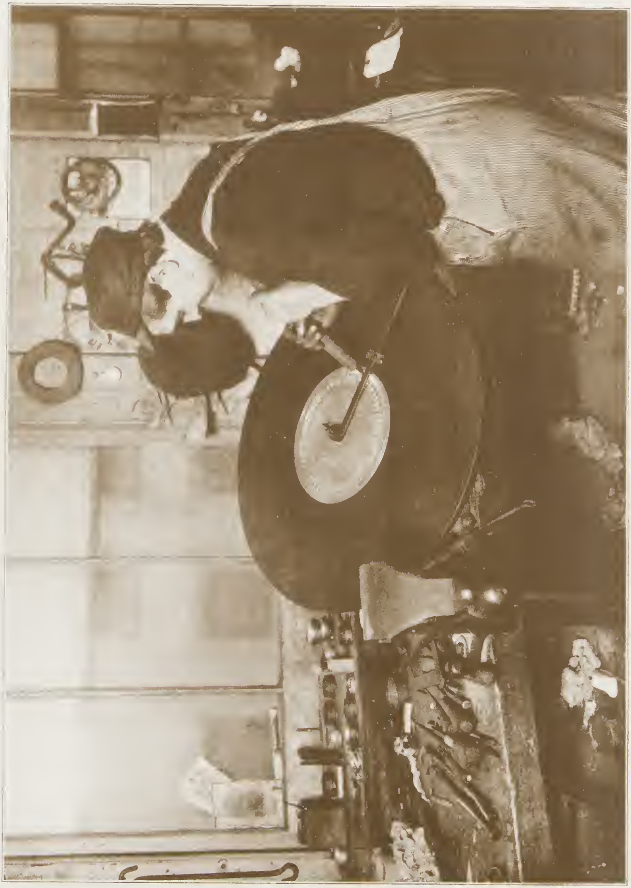
PLATE 9. TESTING NEW SCALES FOR FISH MARKETS

A row of completed dial-face hanging spring balances is on the floor on the right. In the front, a craftsman is adjusting the balance to agree with the test weight in the pan. Behind his head is a group of miscellaneous straight-face balances. Many hooked test weights are suspended from a rail around the bench, but on top there is a stack of very large flat round weights. The kilo weight suggests they were making scales for export to Europe.

PLATE 10. ADJUSTING EVEN-BALANCE SCALES FOR MERCHANTS

Final adjustments are being made to Roberval counter scales of the type with a removable scoop. The craftsman is applying weights to various parts of the pan to determine whether the length and alignment of the legs and stays are correct.

(Plates 1 to 5 can be seen in EQM p334 -338)

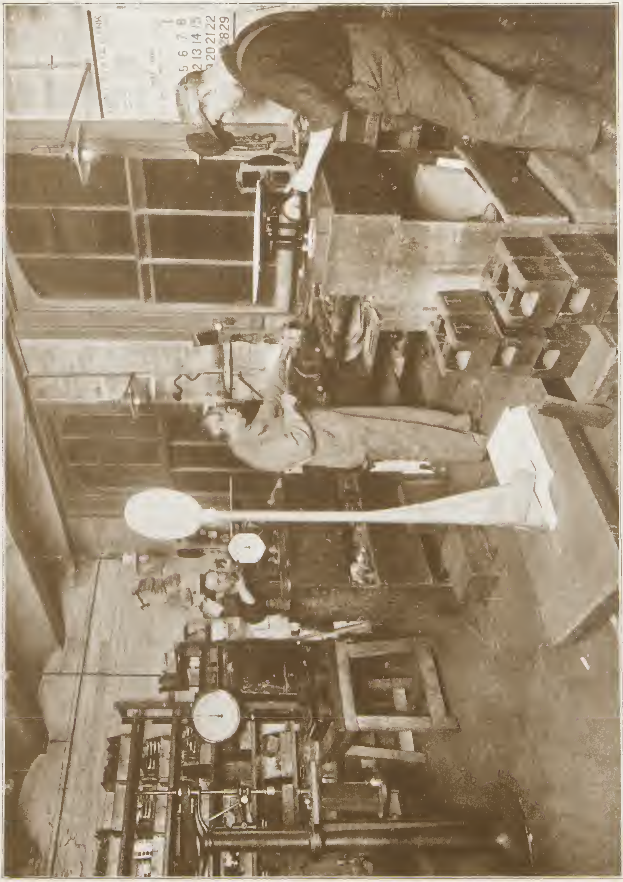


THIS WORKMAN IS SHOWN ENGRAVING A METAL DIAL FOR A SPRING SCALE   SCALE MAKING

PLATE 6

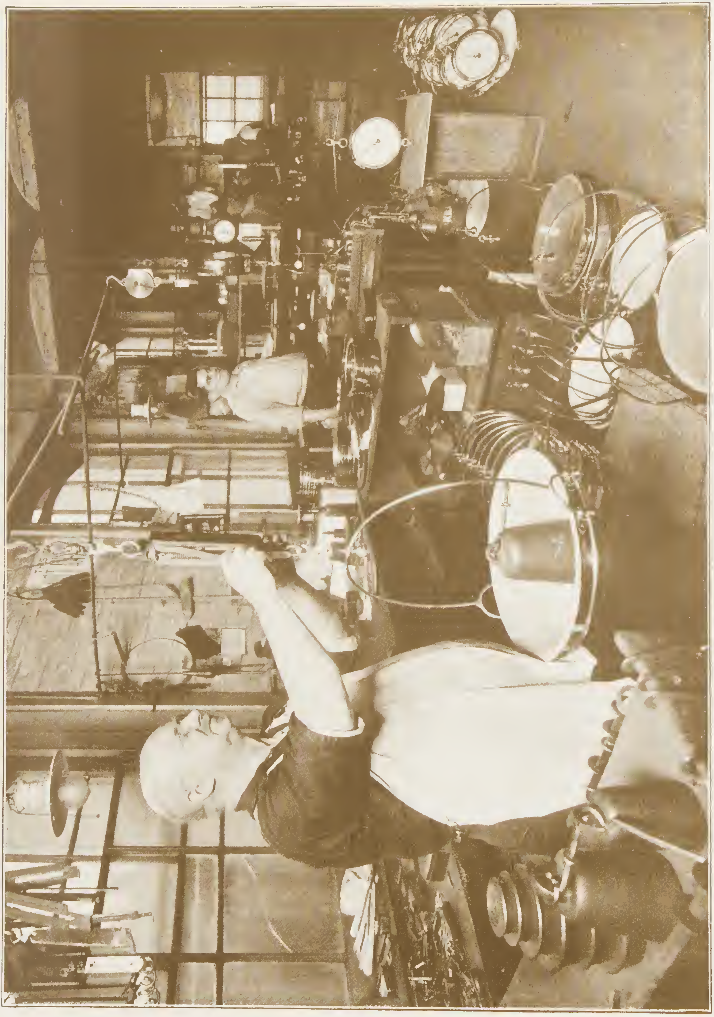
ASSEMBLING PANS AND BOWS IN SPRING BALANCE SCALES—SCALE MAKING

PLATE 7



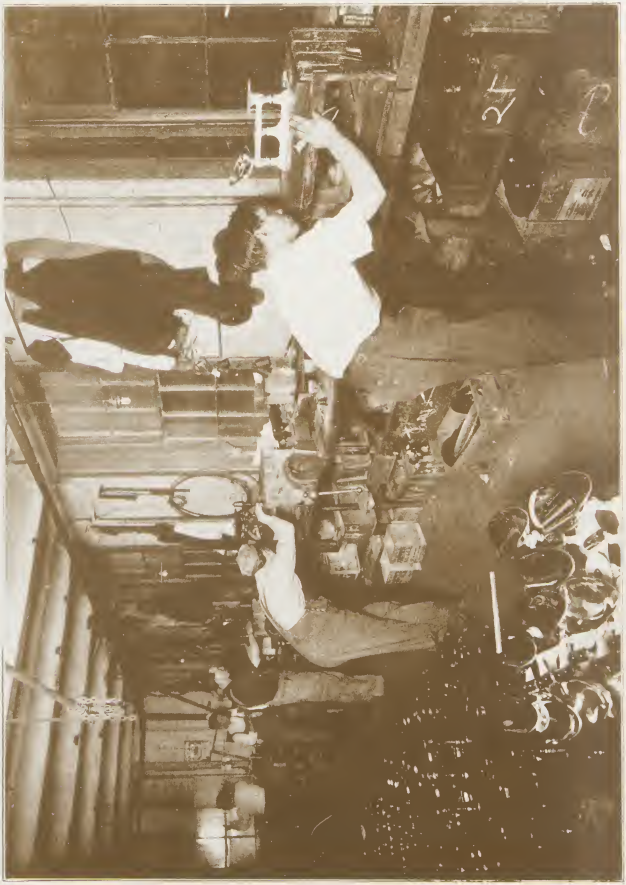
ASSEMBLING SMALL SPRING PLATFORM SCALES FOR RETAIL STORES—SCALE MAKING

PLATE 8



THESE SCALES ARE USED IN FISH MARKETS—WORKMAN IS ASSEMBLING AND TESTING NEW SCALES—SCALE MAKING

PLATE 9



SCALE MAKING

THE ADJUSTING DEPARTMENT FOR EVEN BALANCE SCALES USED BY MERCHANTS

PLATE 10

Patent Postals

MICHAEL CRAWFORTH

A SURVEY OF POSTAL SCALES PATENTED IN BRITAIN, 1840 TO 1940.

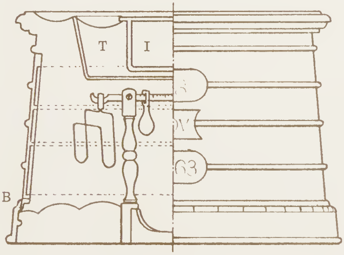


FIG 13. Kimpton's decorative desk set which incorporates several items required by the writer - inkwell, tray, perpetual calendar and a letter scale. The case could be dismantled for access to the scale.

1863 18 Nov. No. 288. S.C.KIMPTON. See Fig 13

A decorative desk set combines a letter scale with an inkwell, tray and a perpetual calendar.

The squat tower-like case had three windows in the side which displayed the date, or other information. The date (day, month and year) was marked on sliding rings concealed in the wall of the tower. In the drawing, part of the case was cut away to show the inkwell'I' and tray 'T'. Beneath the tray was a steelyard letter balance on a pillar fixed to decorative arms in the base of the tower. Access to the balance was obtained by removing the main casing above the base, by releasing a bayonet joint at 'B'. A balance of a similar type, is shown in Fig 14.

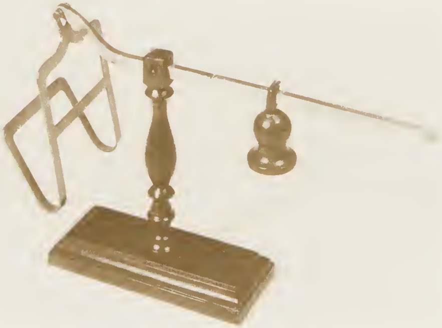


FIG 14. A steelyard letter scale similar to the type shown in Kimpton's patent. The beam and rack are gold lacquered brass, the weight, pillar and base are chemically treated to give a rich brown/black patina. Beam graduated $\frac{1}{2}$,1,2 ounces.

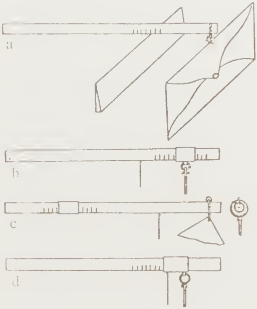
1864 15 Jul. No. 1781. E.BUTES (Provisional)

A pendulum letter balance, of the hand-held or pillar type, had two pointers fixed to the beam. One lever pointed to the weight the other to the postage charge. More pointers could be used if desired.

The patentee did not supply a drawing, so it would be difficult to identify a scale with two pointers as relating to this patent, unless it was marked with the number. (Another patent for a similar idea was obtained by Hall in 1866)

1864 18 Nov. No. 2885 W.CLARK (for E.T.Vandenbergh) See Fig 15

A penholder, paperknife, pencil, rule or any small rod is used as a graduated scale beam for weighing letters or other small articles. Four different variations are described.



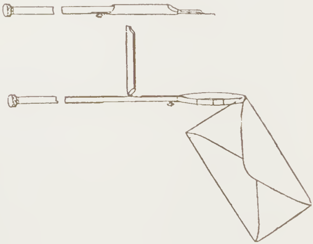


FIG 15. Vandenbergh's four ideas for letter balances, top to bottom: Bismar; Moving Load; Steelyard; Sliding Beam.

FIG 16. Depierris' combined pen holder and letter balance. The penholder was used to suspend the instrument, and the letter clip was pulled out to acheive balance.

The simplest idea of the patentee was a bismar whereby the letter was held by a clip suspended from the end of the beam. A convenient sharp edge, such as a rule or paperknife, was used as the fulcrum, Fig 15a. A counterweight was added to the end of the beam, if necessary.

A fulcrum with a fixed position was used for the remaining three alternatives. One had the letter suspended from a sliding saddle, Fig 15b. Another was a steelyard with a sliding weight, Fig 15c , but the last had the fulcrum and letter clip on a saddle through which the beam could be moved as a sliding weight, Fig 15d. No examples have been seen by the author.

1866 21 Feb. No. 543. N.R.HALL See Fig 17

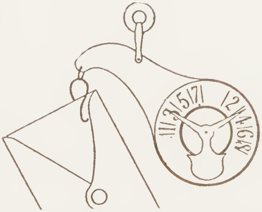
A previous patent, No. 791 of 1863 (EQM page 428) is modified to have two pendulous pointers (or more). The graduation numbers were divided between the pointers alternatively, so permitting larger figures to be engraved or stamped.

The patentee carefully avoided mentioning the use of two pointers, one for weight, the other for postage charges, as this would have infringed on Bute's patent, above. However, this was the way James Heeley & Sons used the patent, as can be seen in Fig 20. The pointer was stamped "Hall's Second Patent".

1866 12 Mar. No. 742. H.A.BONNEVILLE (for H.A.Depierris) See Fig 16

A combined letter balance and penholder has a telescopic clip to hold the letter. The clip can be extended to varying degrees and is graduated with postage rates. A sheath, which holds the pen-nib, is removed and used to suspend the instrument by means of a small hook.

This unequal-arm type of beam is related to steelyards and bismars, but has a variable load position. The use of a telescopic clip is clever because the heavier the letter the shorter the clip extension must be and, therefore, the tighter it grips the letter. No example has been seen by the author.



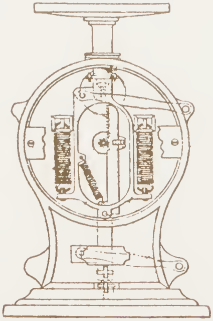


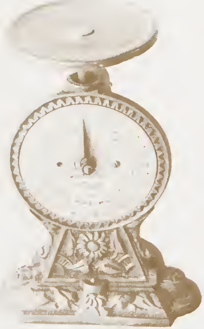
FIG 17. Hall's twin pointer version of his earlier patent.

FIG 18. (right) Silvester's highly successful top pan balance.

1867 11 Jan. No. 68. J.SILVESTER See Fig 18

A spring balance with a dial-face has a top pan supported by a leg and two half-roberval linkages at 90° to each other. Motion is transferred to the pointer by a rack and pinion.

Although no specific purpose was mentioned in the patent, many of these balances were made for weighing letters and parcels, Fig 19 (and for many other purposes). It is the first British patent for this type of mechanism supporting the pan, and it was invented by John Silvester, the works manager and partner in the firm of George Salter & Co. of West Bromwich. Later, his design was much copied by other manufacturers.



1867 4 Feb. No. 305. G.W.BETJEMANN (Provisional)

Ornamental mounts with medieval or other form of decoration are applied to letter scales and to other desk-top articles, which have a stone or marble base.

No drawings were supplied by the patentee, and no examples have been seen by the author.

1867 2 Mar. No. 584. R.WILSON & W.H.BAILEY (Prov)

A gong-type call-bell has the operating lever in the form of a letter balance. The swinging hammer on the end of the lever acts as a pendulous pointer to indicate the weight.

No drawings were supplied by the patentee, and no examples have been seen by the author.

1869 9 Jun. No. 1784. N.R.HALL (Provisional).

A flat metal beam has a sliding saddle which bears the fulcrum and a loop for holding the instrument. The letter, or other article, is suspended by a clip from the end of the beam.

This was a form of bismar, with the fulcrum saddle being moved along the beam to find the point of equilibrium. The beam was graduated with weight and postage charges. The letter clip was suspended from a hole near the top edge of the beam so that a mark on the bottom edge would indicate when the beam was horizontal. No drawing was supplied by the patentee, and no example has been seen by the author.

FIG 19.(above) Salter letter scale made to Silvester's patent. Cast iron with bronze finish and brass face.

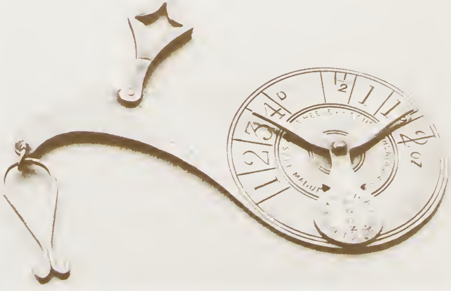


FIG 20.(right) Hall's design made by J.Heeley & Sons. Note the twin pointers are used one for weight, the other for postage. The pointer is marked Hall's Second Patent.

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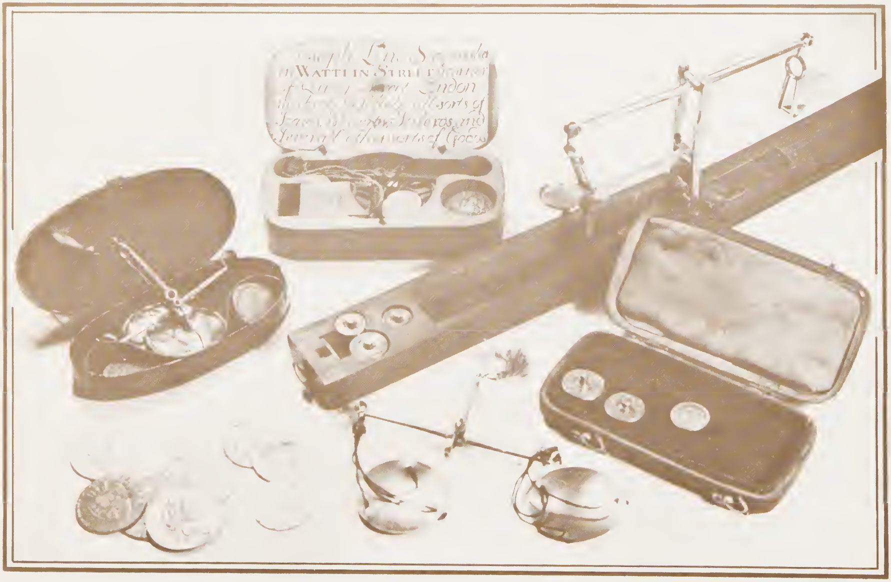
1982–ISSUE NO. 3 PAGES 457-484



Cover Picture

All these scales were used to weigh the guinea and half-guinea, and later the quarter-guinea. They were carried by people, in their pockets, to weigh suspect gold coins. The weights shown with Ronald Stock's article (page 459) come from scale boxes like these, or from similar boxes.

LEFT: Miniature oval japanned metal box with serpentine pens containing weights for the guinea and half-guinea, c1774. Green baize lining. The beam is only 60mm in length (2 1/2 ins).

REAR: Cut-from-solid fruit-wood box containing scales and weights for the guinea, half-guinea, pistole and half-pistole. The locker with a sliding lid contains sheet brass grain weights used to determine how much gold had been lost from a worn coin. Maker, Joseph Lind of London, 1700 - 1729. Beam length 79mm (3 1/8 ins).

CENTRE: Folding gold balance with a steel beam. Weights for the guinea, half-guinea and seven-shillings piece (a third of a guinea), c 1800. The length of the box, when closed, is 170mm (6 5/8 ins)

RIGHT: Miniature shagreen box with green velvet lining and green silk in the lid. Sockets for knobbed weights for the guinea and half-guinea, c1780. A flat weight for the seven-shillings piece was added later when that coin was introduced in 1797. The scales from this set are shown in front of the box. Beam length 74mm (2 5/8 ins).

FRONT LEFT: The 'guineas' and 'half-guineas' are brass gaming tokens made to resemble spade guineas of George III.

Guinea scales were used from 1663 until about 1830, by which time most of the guineas had been withdrawn for recoining into sovereigns.

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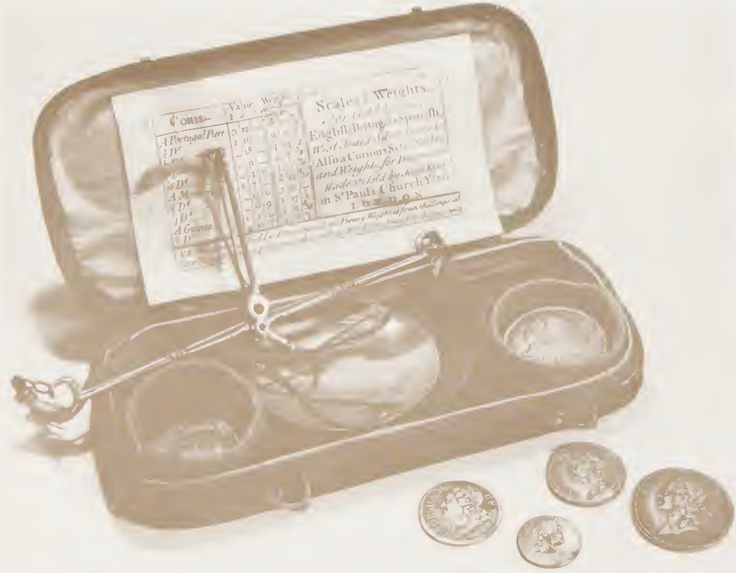
Guinea Weights (Part 1)

RONALD STOCKS

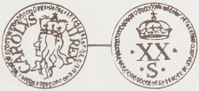
An important series of weights for weighing guineas was made and used for over 150 years. In studying their design and history, it is interesting to consider how their numbers, and by analogy, their use, increased during periods of crisis in the currency and diminished when the currency was relatively stable.

The guinea was first issued in 1663. A Royal Proclamation of that year authorised the Royal Mint to coin gold pieces of the value of twenty shillings "in the name, and for the use of, the Company of Royal Adventurers of England trading in Africa." Forty-four and a half of the new twenty-shilling pieces were to contain 1 pound Troy of "our Crowns of gold."

These twenty-shilling pieces of the Africa Company soon received the popular name of "guineas" because they were made from gold which came from Guinea on the African coast, and were largely intended for use in the trade with Guinea. As silver was the sole standard for money until 1816, the value of the guinea was subject to market fluctuations according to the value of the silver coin, which became so bad that the guinea rose in value to as much as thirty shillings in 1695. It was reduced by statute to 21s 6d



CHARLES II (1649-1685)



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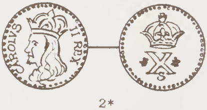

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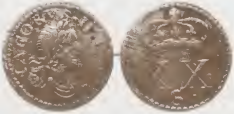
JAMES II (1685-1689)



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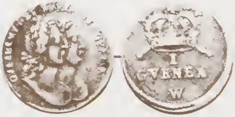
WILLIAM & MARY (1689-1694)



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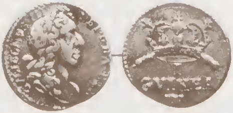

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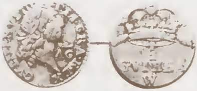

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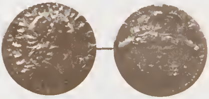

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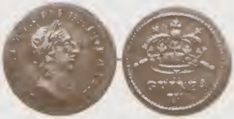

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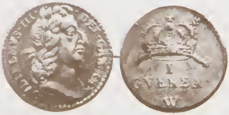

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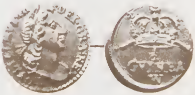

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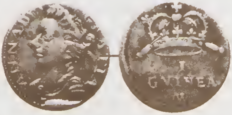
ANNE (1702-1714)



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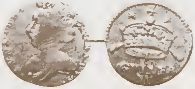

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in 1698 and remained at this figure until a Royal Proclamation of 22nd December 1717 reduced its value to 21s, after which it underwent no further alteration until its final issue under George III.

The guinea was struck by means of the mill press. It was struck by machinery invented by Pierre Blondeau, a Frenchman who had been employed at the Royal Mint between 1649 and 1656, and who emerged from his retirement in France and took charge of the striking of the new coinage. The dies were made by John Roettier, a Dutchman. The mill coinage consisted of five, two, one and half-guineas. An inscription on the edges of the five and two guinea pieces, **DECUS ET TVTAMEN**,* was intended to show that the lettering was ornamental, as well as being a protection against the evil of clipping. The smaller pieces were grained on the edges to serve the same purpose.

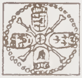
The mill-struck coin was preserved from attack by clipping, not only by its edge, but also by the favourable reaction of the public to the new coin. Speaking of the machine-struck coinage, in 1691, Sir Dudley North enquired "What is the reason why a new half-crown piece, if it hath the least snip taken from its edge will not pass; whereas an old half crown piece, clipt to the quick and not intrinsically worth eighteen pence, shall be current." The same principle applied to the guinea. This may explain why there are so few records of guinea weights remaining from the period of Charles II and James II, when the guinea was new.

Although the milled coinage put an end to the evils of clipping for a time, it was soon found that it had actually increased the opportunity for "culling". i.e. the practice of picking out the heavier pieces from the coinage. This was due to the practice of the Royal Mint of considering the coinage in masses of one pound weight. If the heavy and the light coins combined to make a total of one pound, the coin was still within the terms of the Mint indenture and it was soon found that, whether from negligence or difficulty in exact control of the thickness of the flans, variations of weight which had, for so long, made culling profitable, had actually increased. The customer, on receipt of a packet of new guineas, of which some were two or three grains overweight, would pick out the heavier pieces and send them back to the Mint for recoinage. As coinage was free, he got back 53 guineas for every 52 that averaged 2½ grains overweight. This, as well as the fall in the value of silver during the reign of William and Mary, plus the increased awareness of the public to the irregularities of the debasement of the coinage, probably contributed to the increased number of guinea weights which began to be available in the late 17th century. Large numbers of weights exist for the reign of William and Mary, for the reign of William III alone, and for the reign of Queen Anne.

The weights of William and Mary show, on the obverse, the two busts conjoined facing to the right, with the inscription **GVLIELMVS ET MARIA DEI GRATIA** or **GVLIELMVS ET MARIA REX**. The reverse usually reads **I GVENEA W**, or **GVINEA W**, or **½ GVENEA W**, or similar, under a crown with two sceptres in saltire, (i.e. crossed).

* *Decus et Tutamen = an ornament and a safeguard. - Ed.*

GEORGE I (1714-1727)



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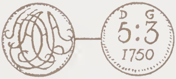
GEORGE II (1727-1760)



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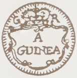

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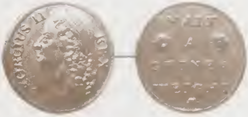

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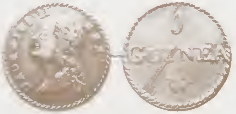

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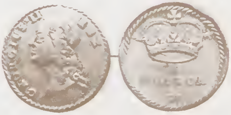

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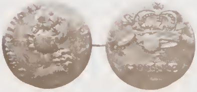

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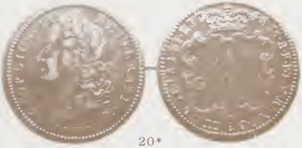

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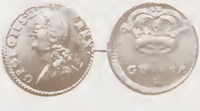

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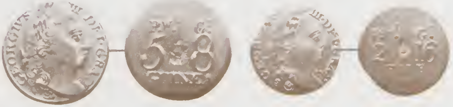
GEORGE III (1760-1820)



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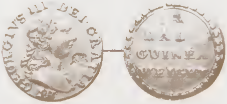

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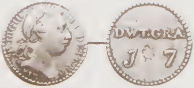

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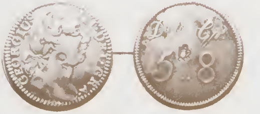

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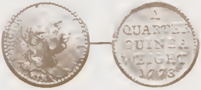

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After 1694, when the Queen died, weights were issued for William alone, and show the bust of William III facing right, with the inscription; **GVLIELMUS III DEI GRA REX**, or **GVLIELMVS III DEI GRATIA**, the reverse as before. A weight with the bust of William III on the obverse, but with the reverse marked **Xs** under a crown is identified by Sheppard and Musham as a weight for the Half-Broad of Charles II.

Weights for Queen Anne are similar, with the bust of the Queen facing left and the inscription; **ANNA DEI GRATIA**, or similar. The weights of this period are often stamped with the ewer of the Founders' Company, and some are also marked with the name or initials of the maker.

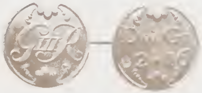
Surviving weights of George I appear to be few in number. This was a period of comparative stability in the currency. A great silver recoinage had taken place in 1696, bringing silver coin back to its full face value. The guinea had been brought to its proper value, in terms of silver, and was further reduced to 21 shillings in 1717. Moreover, Sir Isaac Newton, who was then Master of the Mint, set about securing precision in coining by enforcing a Royal Warrant which had been issued some years before, in 1663, and which limited variations in the weight of individual coins to very fine limits. The maximum short weight allowed was 2 grains on a £5 piece, 1 grain on a £2 piece, ½ grain on a 20s piece, and ¼ grain on a 10s piece. The enforcement of these limits made culling unprofitable.

The only weight, known to the author, which is attributable to this period, is a uniface weight for the guinea, with a companion weight for the half-guinea, which show the shields of England, Scotland, France and Ireland, with the arms of the Electorate in the form of a cross. Sheppard and Musham record this weight, but say that more evidence is wanted to place it definitely in this period. Dieudonné, on the other hand, illustrates this weight and places it definitely under George I. (See note to No.13 - M.A.C.).

A quarter-guinea was struck in 1718, and again in 1762 under George III. Many examples of quarter-guinea weights exist, but these are usually attributable to the later period.

George II came to the throne in 1727. The principal event during his reign was the demonetization of all the old hammer-struck gold coins from the first half of the 17th century, which had remained in circulation. These pieces were considerably worn or diminished and, even before demonetization, banks and revenue officers had refused to accept them. Again, an increase in the number of guinea weights is evident at this period. On the obverse is shown the bust of the King facing left, with the inscription; **GEORGIUS II REX**, and on the reverse; **1 GUINEA W**. There was also a fine series of weights, in both copper and brass, by Kirk. These show the bust of the King facing left with the inscription; **GEORGIUS II DEI GRATIA**, or **GEORGIUS II DG REX**. Under the bust is the name **I KIRK** or **KIRK** only. The reverse is marked **A GUINEA** in a decorated crowned shield, or, **ONE GUINEA WEIGHT**. Half-guinea weights are similar. John Kirk was a celebrated engraver of the time.

GEORGE III continued.



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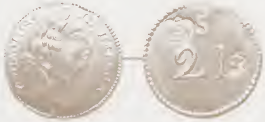

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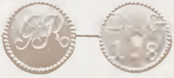

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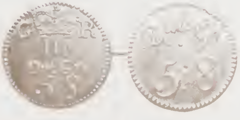

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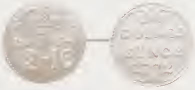

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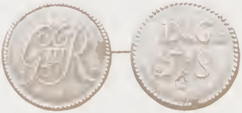

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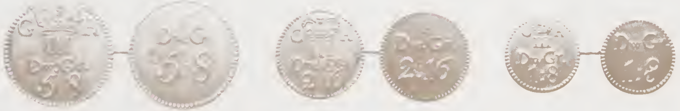

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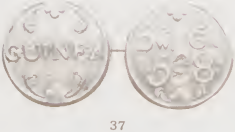

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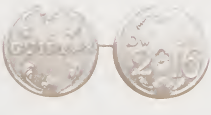

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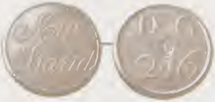

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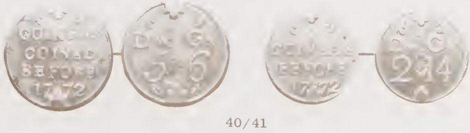

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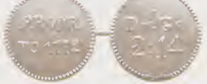


42

Illustrations

BY MICHAEL CRAWFORTH

The original illustrations which accompanied Ronald Stock's article have been replaced by a more comprehensive selection, which shows plain weights and knobbed weights in addition to the decorative weights usually shown in such works.

Photographs and drawings by Michael Crawforth. COPYRIGHT - not to be copied without permission.

NOTES ON THE ILLUSTRATIONS

○-○ - a bar connecting the illustrations indicates the obverse and reverse of the same weight.

u - u after the number indicates a uniface weight. i.e. plain on one side.

d - d after the number indicates a dual-face weight. i.e. identical on both sides.

* - * indicates that there is note about the illustration.

34/35 - / between the numbers indicates that the weights are from a matching set.

All the weights come from scales in shagreen boxes (SHB), cut-from-solid boxes (CFS), made-up-boxes (MUB), or japanned metal boxes (JMB), unless stated otherwise.

1,2 Weights for the first guinea and half-guinea, then valued at 20 shillings and ten shillings. CAROLVS II REX. (Charles II King).

4 GVLIELMUS ET MARIA DEI GRATIA (William and Mary, by the grace of God)

5 GVLIELMUS III DEI GRATIA. (William III was widower of Mary)

7 Initials WH under the monarch's chin. Other weights in the set are for the French pistole and half-pistole, also signed WH. (William Haywood).

11 ANNA DEI GRATIA.

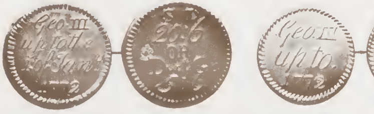
13 The shields and sceptres are the same as the design on guineas of George I.

14 Intertwined initials HA HA (Henry Archdall, Dublin) dated 1750.

15 The crown and scroll is a simplified version of the design on guineas of George II (see also No.20)

16 GEORGIUS II REX. Maker's name KIRK under the bust. (John Kirk, London). Made of copper.

GEORGE III continued.



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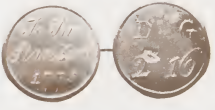

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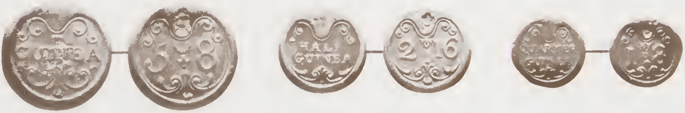

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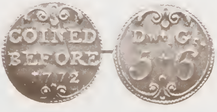

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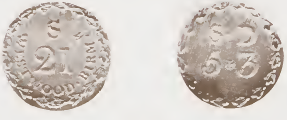
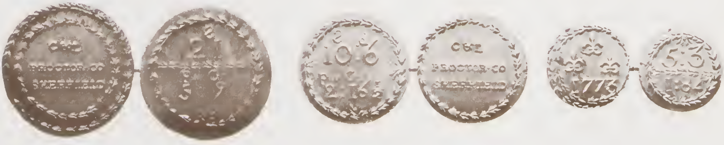


50d*/51d*



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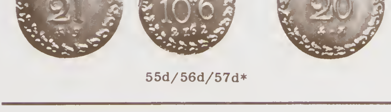
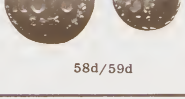


55d/56d/57d*



58d/59d

20 Signed I.KIRK F. (John Kirk, fecit = Made by John Kirk). 1748 M.B. F.ET.H.REX.F.D.B.ET.L.D.S.R.I.A.I.ET.E. (Magnae Britanniae, Franciae Et Hibernia Rex Fidei Defensor Brunsviciensis et Luneburgensis Dux, Sacri Romani Imperii Archi-thesaurarius et Elector. = King of Great Britain, France and Ireland, Defender of of the Faith, Duke of Brunswick and Luneburg, High Treasurer and Elector of the Holy Roman Empire). This is the inscription from guineas of George II.

22 GEORGIUS III DEI.GRA. $P^{wt}5$ $G^{r}8$ GUINEA (5 pennyweights 8 grains). Ewer stamp is the verification mark of the Founder's Company, of London.

24 Initials IH (or HI ?) under the bust. A HALF GUINEA WEIGHT. Crown stamp of the Office of the Stamper of Money Weights at the Royal Mint, inaugurated in 1774.

25 Name KIRK below bust. DWT J GRA 7 (1 pennyweight 7 grains).

26 The mark (stamp ?) on the jaw is unidentified.

27 Maker's name KIRK below the bust. The date 1773 refers to legislation passed in 1774, see article Part 2.

29 Stamped by two authorities, the Royal Mint and Founder's Company. 21 s (21 shillings).

32 The date 1772 refers to legislation passed in 1774, see article Part 2.

39 NEW STAND^{d} refers to legislation passed in 1774, see article Part 2.

43 20s 6d OR 5Dwt 6Gr (20 shillings and sixpence) 5 pennyweights 6 grains was the lowest weight at which a guinea coined between 1760 and 1772 was legal tender, at which weight it had lost sixpence-worth of gold. See legislation passed in 1774.

50,51 Signed WESTWOOD BIRM^{m} The 5s 3d from the same set was not signed. (Weights from an oval japanned metal box labelled I & O Westwood Birmingham)

52-54 Part of a set of weights by C & L PROCTOR. CO SHEFFIELD. (The remainder of the set was for the moidore and Portugal piece and their subdivisions). The fleur-de-lys was used decoratively on all the small weights in this set, and does not refer to French coins. 5.9 (5 pennyweights 9 grains) is the full weight of a new guinea, without allowance for wear.

57 The 20s was the value of a guinea weighing 5dwt 3gr, the lowest weight at which a guinea made before 1760, was legal tender. The 20s should not be confused with the much later Sovereign of the same value. See legislation passed in 1774.

Part 2 of this article, with further illustrations, will appear in the next issue of Equilibrium.

Making Scales & Weights

The following illustrations are from the Encyclopaedia of Alembert and Diderot, published in France, in 1751. They are headed 'Balancier' (Scale-Maker), and come from a collection of plates depicting the Sciences, Liberal and Mechanical Arts.

The Editor is indebted to HERBERT GRIESHABER for the excellent pictures. Free translation and added comments by MICHAEL CRAWFORTH.

PLATE 1 A SCALEMAKER'S SHOP

FIG 1. A workman using bellows on the fire in his brazier. He is melting lead in a crucible-spoon to cast a weight.
FIG 2. A workman filing a scale beam which is held in a vise.
FIG 3. A workman testing and adjusting a balance.
FIG 4. A girl untangling the cords of a balance.

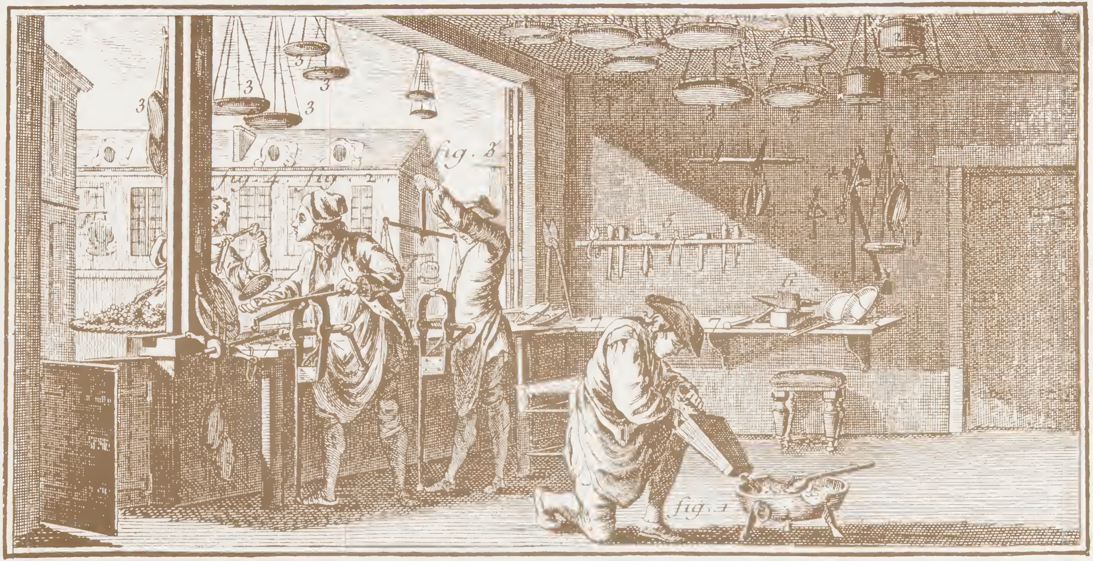
1,2. Candle-maker's balance.
3. Balances of various sizes.
4. Vee-spring balance and steelyard hanging on the wall.
5. Various tools in a rack on the wall; shears, files, hammers, and dividers.
6. Anvil and two-horned stake.
7. Workbenches fitted with vises, and covered with tools and parts of balances being made.

It is surprising to see four adults working, apparently with no apprentice. The illustration of a vee-spring balance is believed to be the earliest one showing this type of scale.

PLATE 1a SCALEMAKER'S TOOLS

1. Anvil stake.
2. Two-horned stake.
3,4,5,6 Hammers of various sizes for forging beams, raising and smoothing scale pans, and so on.
7. Shears.
8. 'German' file.
9,10, Smoothing files.
11,12, Flat and round burnishers for polishing metal.
13, Pincers.
14, Mastersign punch.
15,16, Chisels of various sizes.
17, Centrepunch.
18, Vise fixed to the edge of the workbench with extended leg for increased stability.
19, Large shears with one handle fixed to the workbench. They can thus be operated by one hand while the other hand controls the work being cut.
20, Drill of the type with twisted cord and flywheel operation.

Pl. 1



Balancier.

21, Screw-plate or die, for cutting threads on screws of various sizes.
22, Dividers.
23, Wooden forms for adjusting nesting weights.
24, Bellows.
25, Crucible-spoon for melting lead.
26, Brazier for heating or melting metals.

It is not clear how the wooden forms were used, but it seems probable that the a nesting cup weight was wedged on to the conical form, and the form held in a vise or on a lathe spindle. The weight could then be filed or turned to achieve a tight fit in the nest, and to adjust the mass accurately.

PLATE 2. SCALES OF VARIOUS TYPES

FIG 1. Equal-arm beam with Dutch ends and double hooks, German style.
FIG 2. Equal-arm beam with box ends, German style.
FIG 3. End view showing the shears and suspension loop.
FIG 4. View of the side-plate of the Dutch end, showing the hardened steel insert for the bearing.
FIG 5. End view of the side-plates joined together by spacers at top and bottom. Beam in the centre, hook below.
FIG 6. Knife edge pin.
FIG 7,8. Spacers which connect the side-plates.
FIG 9. Steelyard with square goods plate.
FIG 10. Turn-over steelyard.
FIG 11. Vee-spring balance.
FIG 12. Small beam with swan neck ends, on a stand.
FIG 13. Balance in a glass case. No means of access is shown.
FIG 14. Spring balance of the tension type.
FIG 15. Cut-away view of the spring balance.

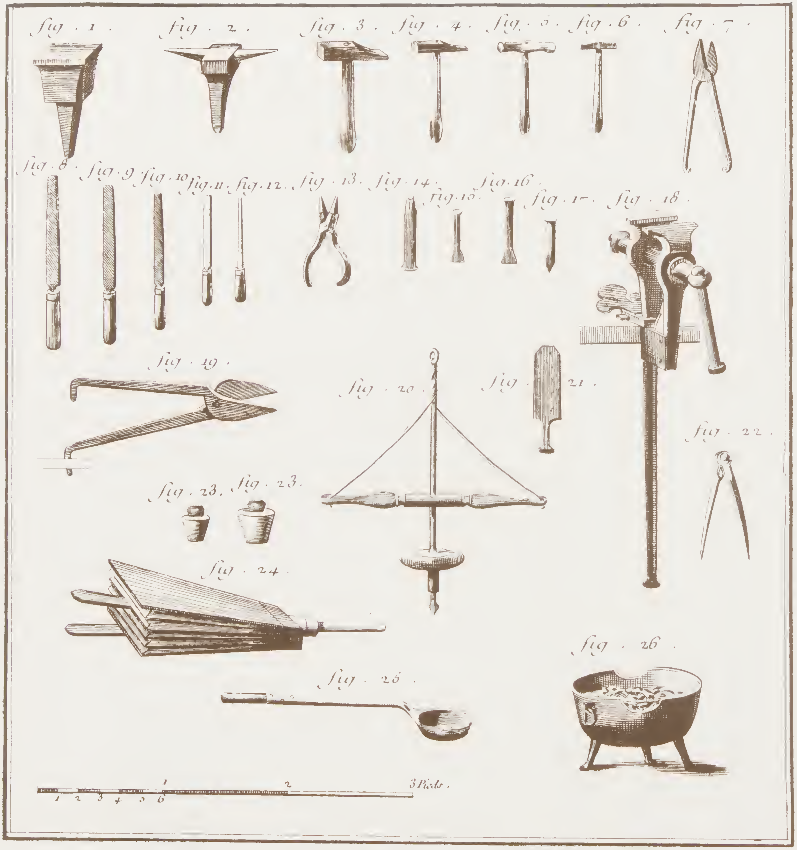
Is this the first illustration of a tension spring balance with a pull-out bottom rod ? The earliest known picture of a spring balance, in 1694, shows a compression spring with a pull-out top (as made by Richard Salter in England from c1760 on).

PLATE 3. SCALES

FIG 1. Large box-end beam with sight-hole shears.
FIG 2. Pointer.
FIG 3. Suspension loop and cross bar.
FIG 4. Cut-away view of the box end, showing the hook suspended from the knife edge.
FIG 5. Pendant with finial and fixing screws.
FIG 6. One leg of the shears showing attachment of the pendant.

It is interesting to note that this form of construction was still being used in England, in 1892 - See EQM page 91. The apparent monumental size of the beam is deceptive; the dimensional scale shows the beam to be under 2 feet in length (600mm).

Pl . 12



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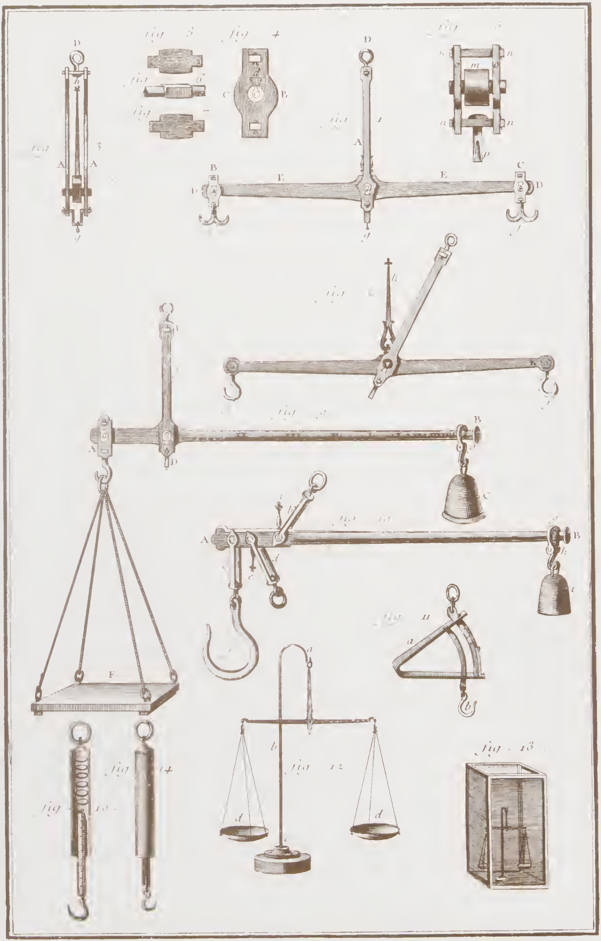

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Pl. III.

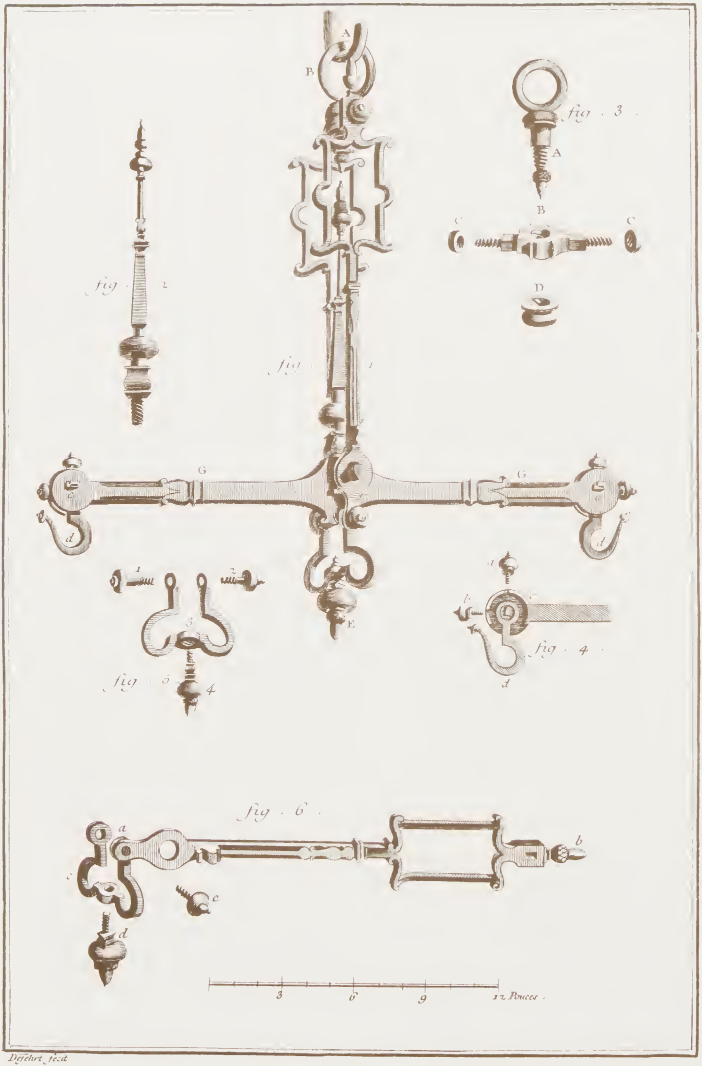

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PLATE 4. SCALES AND WEIGHTS

FIG 1. Scales on a stand. The beam ends have primitive hook-and-ring bearings.
FIG 2. Scales with swan-neck ends, on a stand. The scales are shown on an office desk with pigeon-holes for papers. A bracket on the wall provides an alternative suspension for the scales.
FIGS 3 to 11. A set of nesting weights, of 2 marcs, 4,2,1 once,4,2,1, and ½,½ gros.
FIG 12. Lidded nesting weights of 24 or 32 marcs.
FIG 13. Nesting weights with the lid open, showing the cup weights fitting one inside the other.
FIGS 14,15 Brass shop weights.
FIG 16. Large iron ring weight of 100 livre.
FIG 17. Small nesting weights.
FIG 18. Medium size nesting weights.
FIG 19. Small iron ring weight.
FIGS 20,21. Small lead weights used in shops for goods of low value.

The decorative seahorses and mermen show the large nesting weights to be of Nuremberg manufacture. The set shown with a handle, but no lid, is unusual : has any member seen nesting weights of this design ?

PLATE 5. DIAMOND SCALES

FIG 1. Cut-from-solid wood box containing square weights of 1,2,4,8,16,32 carat, and in a locker with a sliding lid, 1/2,1/4,1/8,1/16,1/32 of a carat.
FIG 2. Diamond scale with swan-neck ends.
FIG 3. Combination tool. Tweezers for handling the weights and a shovel for placing diamonds in the scale pan.
FIG 4. Sensitive jeweller's balance with swan-neck ends, suspended from the top of a glass case. A cord is used to raise the beam for weighing. Two small removable pans are used for the diamonds and weights.
FIG 5. End view of the balance showing the mounting bracket.

The jeweller's balance has small removable pans very similar to those used on assay balances.

* * *

Any member who has old illustrations of scales or weights being made, or used, is invited to send copies (or originals) to the Editor for publication. Originals will be handled with care and returned after copying. The illustrations may be engravings, drawings, photographs etc. from any period, including the twentieth century.

Pl. IV.

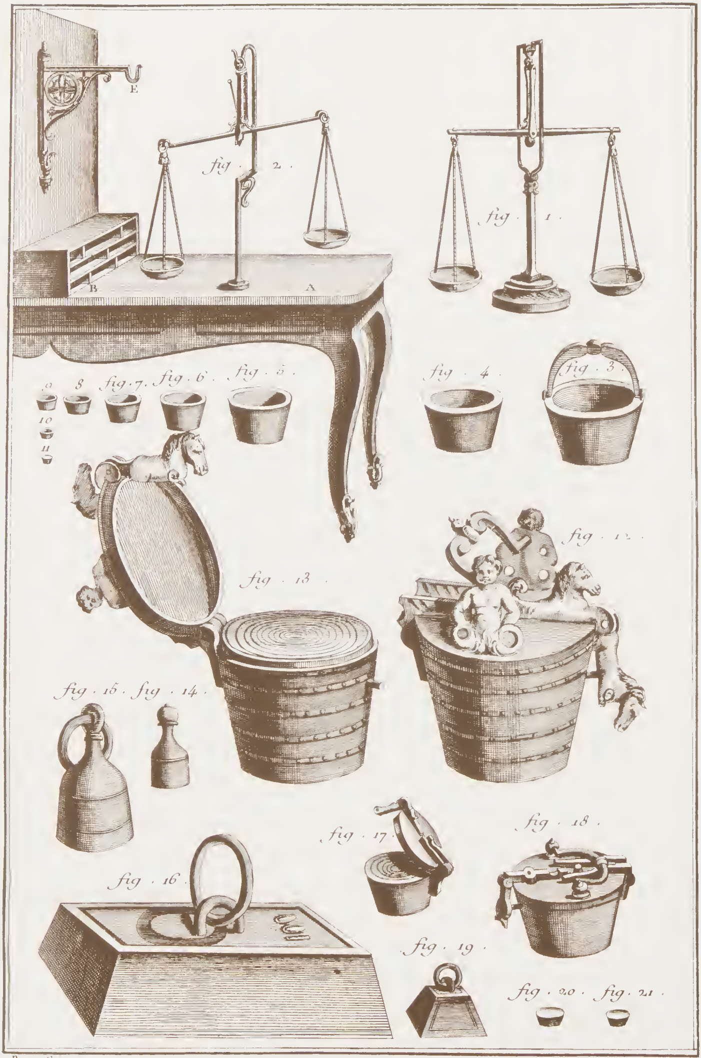
E
fig. 2.
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fig. 20.
fig. 21.

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fig. 2

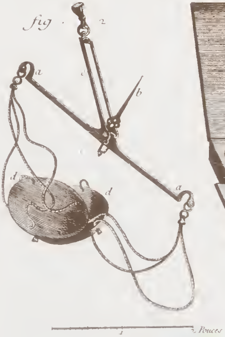


fig. 1.

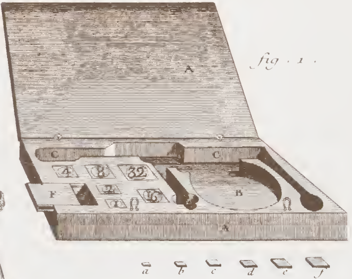


fig. 3.

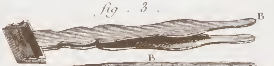


fig 4.

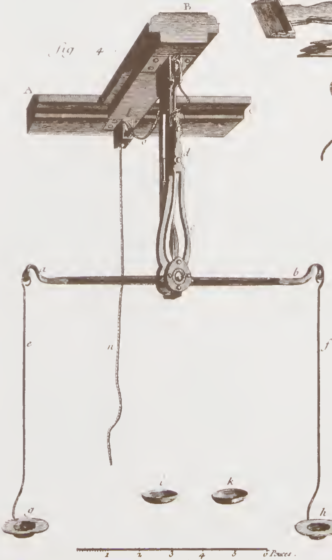
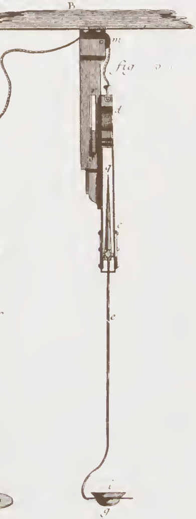


fig 5.



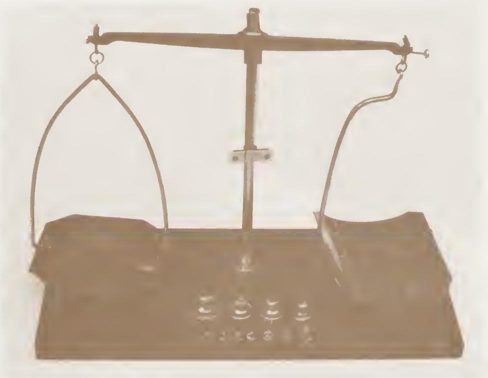
Benard fecit

Balancier.

Drugstore Scales

LOU UIT DEN BOOGAARD

This balance was used for weighing medicines or sweets in a drugstore. The pan on the left was for the weights and the curved pan on the right held a paper bag for the goods. Construction was entirely of brass with continuous steel knife edges. A small screw 'balance-ball' on the end of the beam was used to adjust the balance. The beam was stamped BECKER'S SONS, ROTTERDAM. The weights were marked 2,1,1 hectogram, 5,2,1,1 decigram, 5,2,2,1 gram, and their verification marks indicate a date of manufacture circa 1877.

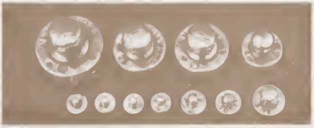


Christopher Becker was born at Filsum, near Hannover, in Germany. He went to school in Filsum and then became an apprentice of Mr.Humboldt, in Hannover, but before his training was complete he ran away and started a business making instruments at Gronigen, in Holland, around 1828. There, he made many accurate instruments of great variety, airpumps, dividing machines, heliostats, pendulums, and balances.

Becker was a very energetic and enterprising man whose character often brought him into conflict with his neighbours. In Gronigen, he got into trouble with the city authorities and had to leave. He established a new instrument factory at Arnhem, which became well-known for balances, electrical instruments and barometers.

He married a Miss Marius, and they had five sons. Some years later, after more trouble with the authorities, Becker and four of his sons emigrated to America. There, they established several new businesses; Becker's Son's in Brooklyn, where they made first-class balances and barometers; The American Balance Company; and the Torsion Balance Company.

Eventually, three of the sons returned to Europe where they ran balance factories in Brussels, Delft and Rotterdam (where this drugstore scale was made). The Delft factory still has a grandson of Christopher as a Director. The further history of the family is so complicated that even the descendents have not been able to determine the details !



Lou would be interested to hear from any member who has a Becker scale, especially one made in America.

REFERENCE

ROOSEBOOM. Dr.M. 'The History of Instrument Makers in the Northern Netherlands' Published by the Museum for the History of Natural Science, Leiden, Holland.

ACKNOWLEDGEMENT

The author thanks Gerard Houben for information supplied for the article.

Showcase

1. The 'VICTOR' postal spring balance, by Triner, U.S.A. The comprehensive dial covers postage rates for letters; airmail; newspapers and magazines; books, catalogues and seeds; merchandise and printing; including zone rates and special delivery rates. Painted sheet metal.

BOB STEIN COLLECTION

2. Brown plastic bismar letter balance, by Bex, England, in its original box. Graduated 0 - 4oz. The strangely shaped handle is moved along a slot in the beam until the instrument balances.

LOU UIT DEN BOOGAARD COLLECTION

3. Iron steelyard graduated with a series of lines and dots. It is the turn-over type with two alternative triangular handles for suspension. The weight is missing, and its hanger is shown upside down. Length 686mm (27 ins).

WARREN RUSSELL COLLECTION

4. Pendulum letter balance marked N.B. (Narcisse Briais of Paris). Brass, mounted on an ebonised turned wood base. Graduated 0 - 100g.

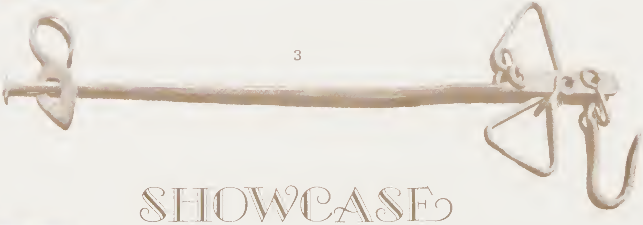
DIRK SCHMITZ COLLECTION

5. Chemical balance with two rider bars above the beam. Brown plastic base marked Griffin & Tatlock Ltd, London, Edinburgh, Manchester, Glasgow & Liverpool. Regd. 809220 (1936).

LOU UIT DEN BOOGAARD COLLECTION

1

2



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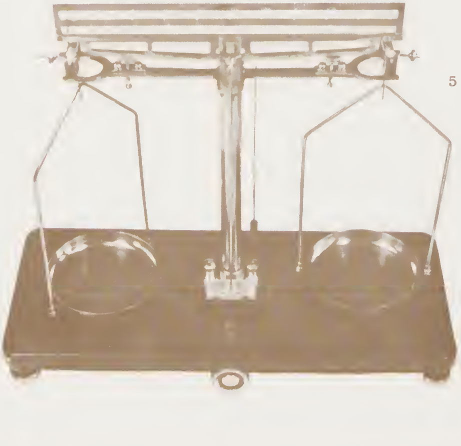
SHOWCASE

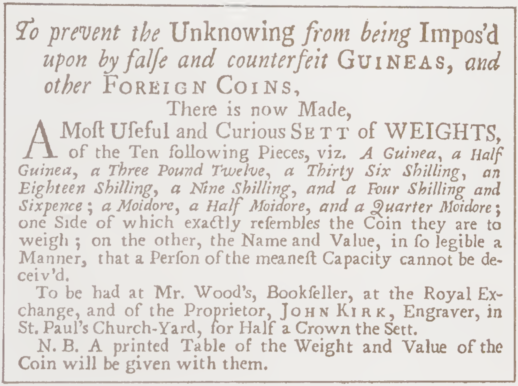
4



5

Old Advert

London Evening Post, September 1747.



To prevent the Unknowing *from being* Impos'd *upon by falſe and counterfeit* GUINEAS, *and other* FOREIGN COINS,

There is now Made,

A Moſt Uſeful and Curious SETT of WEIGHTS, of the Ten ſollowing Pieces, viz. *A Guinea, a Half Guinea, a Three Pound Twelve, a Thirty Six Shilling, an Eighteen Shilling, a Nine Shilling, and a Four Shilling and Sixpence; a Moidore, a Half Moidore, and a Quarter Moidore;* one Side of which exactly reſembles the Coin they are to weigh; on the other, the Name and Value, in ſo legible a Manner, that a Perſon of the meaneſt Capacity cannot be deceiv'd.

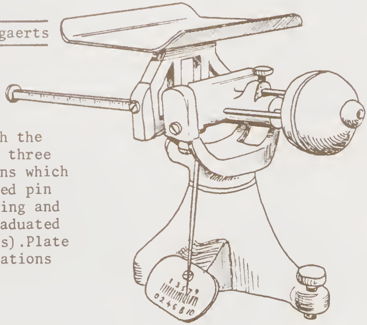
To be had at Mr. Wood's, Bookſeller, at the Royal Exchange, and of the Proprietor, JOHN KIRK, Engraver, in St. Paul's Church-Yard, for Half a Crown the Sett.

N. B. A printed Table of the Weight and Value of the Coin will be given with them.

N.B. In the 18th century, 'curious' was used to mean well-made. - Ed.
The printed Table of Weight and Value can be seen on EQM p459.

Notes & Queries

NQ 63 MYSTERY SCALE query from V.Bogaerts



Please can you tell me what this scale was used for ? (I think it may be a letter scale). Also, where does it come from and how old is it ? The beam slides through the centre housing, and can be fixed in three accurate positions by means of 3 pins which project from the weight. The required pin is pushed into a socket on the housing and locked with a screw. The beam is graduated 10.oo - 100.oo, length 210mm (8¼ ins).Plate size 100 x 90mm (4 x 3½ ins). Graduations near the foot 0 - 10.

CAN ANYONE HELP VICTOR BOGAERTS ?

Patent Postals

MICHAEL CRAWFORTH

A SURVEY OF POSTAL SCALES PATENTED IN BRITAIN, 1840 TO 1940.

1870 17 Mar. No. 800. T.J.SMITH. (for G.C.Hatch)

Any suitable letter scale is fitted with a box containing a reel of stamps or labels.

No drawing was supplied by the patentee, and no example has been seen by the author.

1870 6 Apr. No. 1016. C.H.WIGHT — See Fig 21.

An elaborate desk-set combines a candlestick type letter balance with an inkwell, penrack, calendar, sponge, glue bottle, thermometer, paper-drawer, pen-nib cleaner and a miniature safe.

What, no blotting powder !

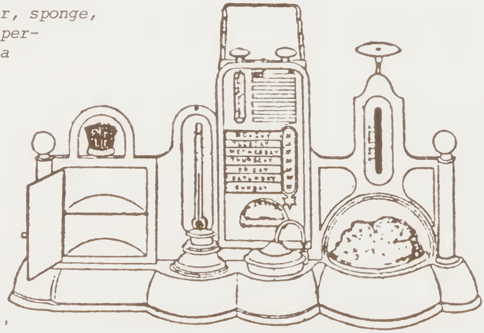


FIG 21. Wight's desk-set.

The balance is shown on the top right, the penrack top centre and the pen-nib cleaner top left. The safe is on the left, thermometer and calendar centre, inkwell, glue and sponge at the front.

1871 3 Aug. No. 2052. A.E.RAGG (Provisional) — See Fig 26.

A pendulum balance with a quadrant marked in ounces, etc. The bent beam has a weight at the lower end and the top is forked. One arm of the fork suspends the letter by a spring clip, or pan, the other arm is the pointer.

Although no drawing was included with this patent, a later patent by Ragg elaborated on his idea, and illustrated the design envisaged. An example bearing the name Jos. Illfelder, (of London), is shown in Fig 26. Other examples have been seen marked N.B. Paris, Perry & Co, and J.G.

FIG 22.(right) Loughton's drawing for his patent.

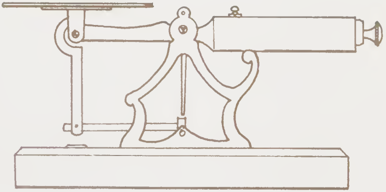


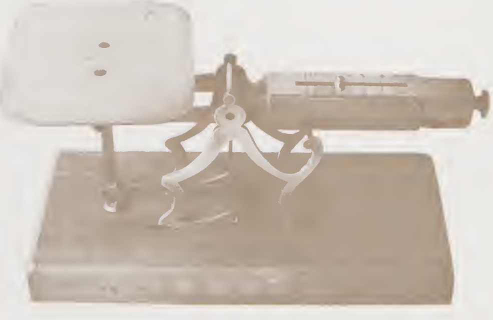
FIG 23.(below) Postal scale made to Loughton's patent and marked Perry & Co. S.Turner's Patent.

1871 16 Oct. No. 2741. G.LOUGHTON See Figs 22,23.

A half-roberval and steelyard has a telecopic sliding weight. The tubular beam is square in section and has a slot and pointer. Weight and postage rates are marked at the side of the slot.

Instead of a weight hanging from the beam, the patentee used a lead-filled weight sliding inside the beam, which was hollow for this purpose. The principle of a hollow beam and sliding weight was not new. It had been used on the "Boy scale" registered by H.B.Wright, in 1839.

The patentee's drawing shows the classic shape of balance, as can be seen in the photograph, Fig 23. Examples are sometimes marked S.Turner's Patent' (presumably Samuel Turner, Snr), so, possibly, the patent rights were sold to him by Loughton. Examples are also seen marked Perry & Co. and T.J.& J.Smith, London. Balances of a different aesthetic style, but of the same principle, were made in several varieties.



1874 19 Oct. No. 3591. T.A.BROCKELBANK See Fig 24.

A half-roberval system has a number of weights supported one above the other, below the end of the beam. Weights are 'collected' by a hanger on the beam until there are sufficient to balance the load.

This is another of the many ideas for weight-collecting beams. The patentee suggests that it may be used in various sizes for weighing letters, coins or goods suspended from a crane ! The weights are a series of flat discs, each slightly larger in diameter than the one below. They are stored inside a stepped inverted cone. The hanger rod passes through a hole in the centre of the weights, and a disc fixed to the bottom of the rod lifts the weights. A box base conceals the stay and weight system. An extended arm from the letter plate indicates the weight or postage rate on a vertical plate fixed to the A-frame.

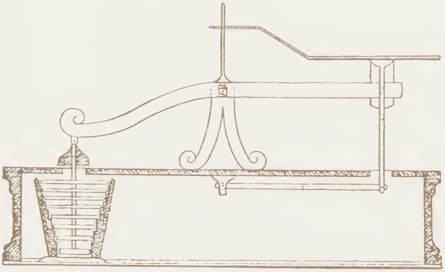
1875 6 Apr. No. 1242. W.HISCOCK (Provisional)

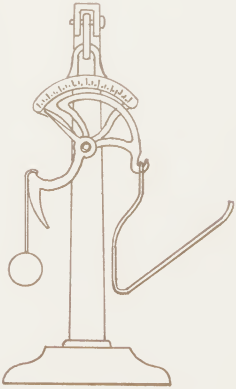
A pendulum balance has a beam made in several parts jointed together. When required to weigh articles above 4 ounces, these joints may be extended. The extra amount is indicated by a second pointer. The base may be arranged as an inkstand with the lid closed automatically when a pen is placed in the scale pan.

No drawing was supplied by the patentee, and no example has been seen by the author.

FIG 24.(below) Brockelbank's weight-lifting balance with weights concealed inside the wooden base.

FIG 25.(right) Mackenzie's pendulum balance with the weight suspended from a cam.





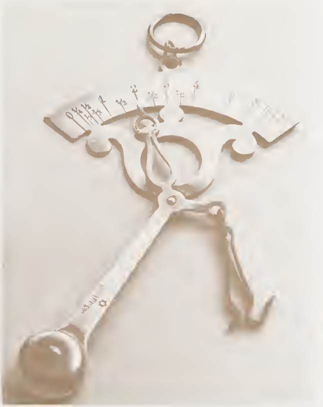


FIG 26. A balance similar to Ragg's description, and marked Jos. Illfelder. The inclusion of 1/3 and 2/3 oz indicates a date between 1869 and 1875.

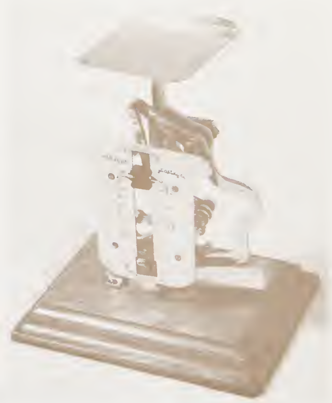


FIG 27. This letter balance fits the description in Hiscock's patent, with a vertical slot for the pointer.

1876 27 Sep. No. 3766. J.MACKENZIE See Fig 25.

A pendulum balance has the weight suspended by a flat strap which passes over a cam. Letters are placed in a suspended rack, and the balance is fixed to a turned pillar.

By the clever use of a cam, the patentee obtained equal spacing of the weight graduations, so overcoming one of the major disadvantages of the simple pendulum system. No example has been seen by the author.

1877 26 Apr. No. 1629. W.HISCOCK (Provisional) See Fig 27.

A pendulum letter balance has a pointer sliding up a straight slot in the face of the instrument. A rod connects the pointer to the pendulum mechanism.

No drawing was supplied by the patentee, but the description seems to fit the balances marked Marion & Co., as shown in Fig 27. Although it is attractively different from the more common dial or quadrant type, there appears to be no mechanical advantage in this system. On the contrary, there may well be more friction.

ISASC

EQUILIBRIUM®

QUARTERLY MAGAZINE OF THE INTERNATIONAL SOCIETY OF ANTIQUE SCALE COLLECTORS

1982–ISSUE NO. 4

PAGES 485–512

PAGE 486

Cover Picture

This attractive little Beranger confectioner's scale is only 215mm long (8½ins). Most of the parts are made from brass, and the maximum capacity of 500g is cast into the main frame (centre). Two bird-like indicators, between the pans, show when the beam is level. Below the pans, the beam, sub-beams and links make fascinating movements when the scale is working. In front, are some brass weights typical of those used with this type of instrument.

The scale was made by HISAR TERAZZI in Istanbul, Turkey, and was bought, new, in 1976. This company's shop was full of scales of the same type, in all sizes up to about a metre long, (3'3"). Most of them were painted iron, only the smaller ones were gleaming brass. Similar scales could be seen in the city markets and the Grand Bazaar, being used by traders for meat, vegetables and all kinds of domestic goods. The shop was on a street of scale makers and retailers, and the air was full of the sounds of hammering, filing and chiselling graduations on steelyards - very much as it must have been in Birmingham or London, in the early 19th century.

It is easy to see why the British Board of Trade refused to approve this kind of open Beranger scale. If any dust or dirt gets in to the mechanism, it is impossible to clean it properly, and every time the scale is moved, the bearings slip out of alignment. But it is a marvellous collector's piece !

Beranger scales were permitted for trade, in Britain, providing the mechanism was enclosed in a protective case.

INTERNATIONAL SOCIETY OF ANTIQUE SCALE COLLECTORS
Founded September. 1976
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American Weighing Scoops

THOMAS CARLEY

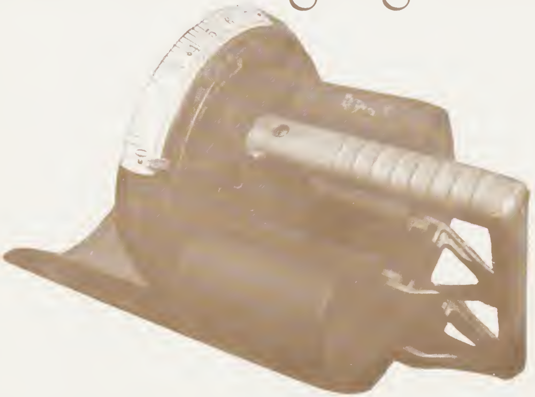


FIG 1. 'Wayscoop'

Since first reading about Weighing-Scoops in ISASC Newsletter number 3* I have been intrigued by them. Constant weekly surveillance at flea markets and antique shows was discouraging, but in a three year period, one true weighing scoop (Wayscoop, patent 1913296), Fig 1, and six measuring bismars were acquired. Then, in the Spring of 1981, one like Al's appeared. This took the pressure off my possessive desires, but not my interest in weighing-scoops.

In studying the U.S. Patent Office Classification of 'Patents, Class 177, Weighing Scales,' it was noted that Subclass 131 is entitled "Convertible, Hand Manipulated, Load pick-up devices." To the layman, Patent Office terminology is not very intelligible, but this description certainly seemed as if it might refer to weighing-scoops. It was ascertained that there are 66 patents in Subclass 131, so, as a 'shot in the dark' all of them were ordered. When the batch of patents finally arrived it was a relief to find that it did include scoops. It also included ice tongs, gaff hooks, landing nets, luggage handles, and pitchforks! After sorting these out there were still forty-three patents on weighing-scoops

The development of weighing-scoops is, to some extent, an enigma. What was the need? Why did they evolve in the first place? Good counter scales and hanging spring scales were readily available in the latter part of the 19th century. Geography does not seem to be a factor, as the inventors were well distributed over America in 18 different States. Even the inventors, themselves, did not contribute to this subject very much. In most other patents the second paragraph is devoted to explaining briefly the object of the invention. In all 43 weighing-scoop patents, only four different references to a particular need were found. They are:-

---

* *By Al Eaches, March 1977.*

1. To save time and steps between the bin and the counter scale.
2. No waiting for counter scales in use by others.
3. Convenient in places where no other scale is available.
4. Convenient where bins are situated in dark closets. (This inventor, of course, incorporated a flashlight in the handle!).

Nevertheless, thirty-six different men spent a lot of time and effort in patenting weighing-scoops. Before the turn of the century, 22 patents were issued, and 21 more were issued between 1900 and 1943.

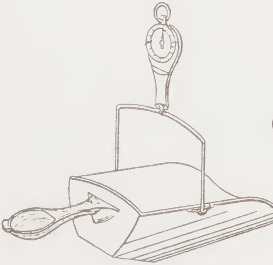


FIG 2. J.K.O'Neil's dial-face balance and scoop, No.78604, of 1868.

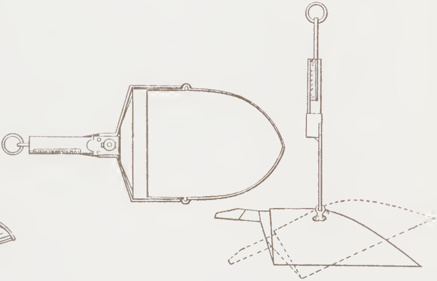


FIG 3. The first patented weighing-scoop, J.K.O'Neil, No.53327 of 1866.

The first patent, in Subclass 131, No.53327, was issued to J.K.O'Neil on March 20th, 1866. His scoop was suspended by a wire loop and spring balance which folded down to form part of the handle for normal use of the scoop. When required to weigh, the spring balance and wire loop were swung into the vertical position, Fig 3.

A dial-chart scoop was first patented in 1868, also by J.K.O'Neil. He incorporated a dial-face spring balance and various minor improvements upon his earlier design. For example, the scoop was provided with an angled flat bottom to prevent the contents spilling out when the scoop was set down on the counter, Fig 2.

The first patent with a compression spring was issued in 1877. It had a circle of little wheels at the top and bottom of the tubes to provide smooth operation. A spring thumb-catch locked the mechanism when scooping, Fig 4. W.H.Davidson's patent of 1897 worked on the same principle, but had ball bearings and a more elegant shape, Fig 5.

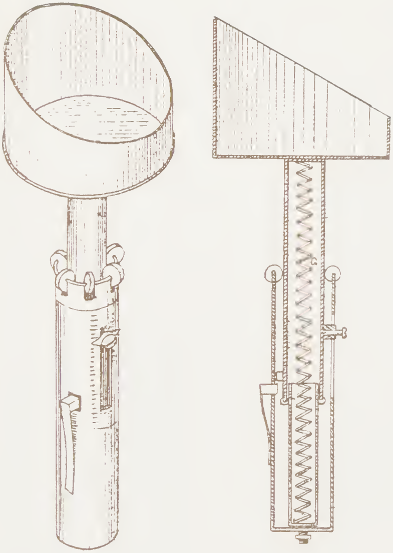


FIG 4. Compression spring scoop by M.L.Mery, No.196245, of 1877.

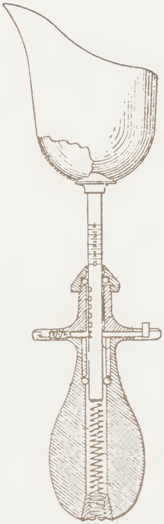


FIG 5. Ball bearings in Davidson's compression spring scoop, No.590035, of 1897.

The first patent incorporating a sliding weight was issued in 1882. The scoop had roberval links and a small steelyard beam in the open-sided handle. A simple trigger attached to the scoop, prevented operation when scooping, Fig 6.

Patent No. 733411, issued in 1903, appears to take the award for complexity and impracticality, Fig 7. In addition to the weighing dial on the handle, a subsidiary dial was connected to an automatic gate. This dial was set to the required weight, then any surplus contents of the scoop were allowed to pour out of the gate, which automatically closed when the correct weight was reached. This is the type that I question ever reached the market place.

The ultimate in sophistication - a patent for the first weight-computing weighing-scoop - was issued in 1906. The second, and only other one, was issued to F.C.Howe, of El Paso, Texas, in 1907. His scoop had a wide cylinder chart mounted across the handle. The chart had weight calibrated around the left side of the cylinder, price per pound along its length, and the computed price, per indicated weight, across the chart, Fig 8. Mr. Howe must have been a dedicated weighing-scoop man. He took out four patents, each for a complete scoop, all in 1907 !

Many of the other patents provided minor improvements, or major complexities, like removable containers, anti-friction rollers, automatic sealing of the mechanism from dust, grain, etc, or the addition of a hook for weighing solid bulky products. The following chart provides a brief analysis of three essential aspects of weighing scoops. (The totals in each category do not add up to 43, as some patents provide more than one option). ▷

RESISTANT		CHART		PRODUCT	
Tension spring	27	Cylinder	27	Dry	41
Compression spring	14	Dial	6	Liquid	4
Sliding poise	3	Fan	6		
		Beam	5		
		Computing	2		

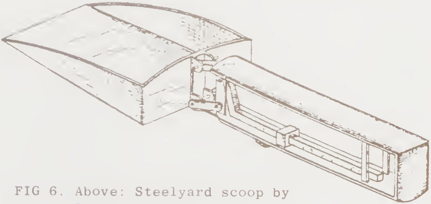


FIG 6. Above: Steelyard scoop by Roberts, No.258476, of 1882.

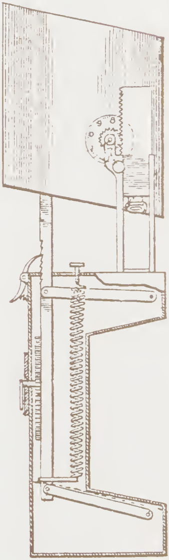


FIG 7. Right: Maxwell's complicated mechanism automatically disgorged excess contents from the scoop, No.733411, of 1903.

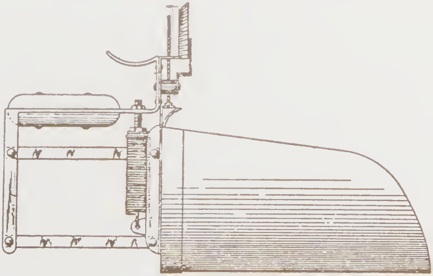


FIG 8. Shipman's scoop, No.1913296, of 1933, marketed as the 'Wayscoop' - See Fig 1.

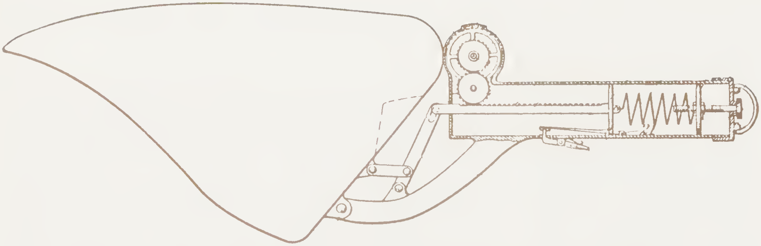


FIG 9. A price-computing chart featured in Howe's scoop, No.852182, of 1907.

When the 43 patents were first examined, I could not account for the Wayscoop's No.1913296, not being among them. After reading completely, all of the patents, I realized that all in Subclass 131 have a locking or restraining means to prevent the weighing mechanism from functioning during the scooping process. The Wayscoop does not have this feature. Therefore, I interpret the Patent Department Terminology 'convertible' to mean convertible from a scoop to a scale, whereas the Wayscoop is simultaneously both a scoop and a scale. This indicates more research by the author to verify this interpretation, and to see if there is another treasure chest of Weighing-scoop patents buried in the Patent Office.

Of prime interest to collectors, would be knowing how many of the 43 'ideas' ever reached the market place. This we will never know accurately, but I would estimate a small percentage. The scarcity of them in the antique market would tend to substantiate this assumption.

Several members have a 'Wayscoop'. If anybody has another type in his collection, I would appreciate his sending me a sketch or a photograph to extend this investigation. If anybody has a catalogue that lists a Weighing-scoop, a photocopy of the page would be very much appreciated. Tod Carley.

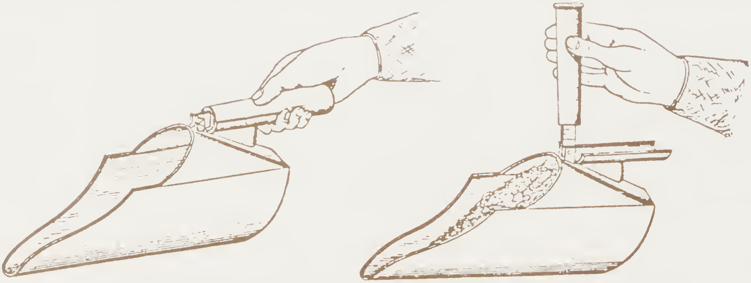


FIG 10. How to use the scoop by C.B.Crofford, No.634747, of 1899.

WEIGHING-SCOOPS. U.S. PATENT OFFICE, CLASS 177, SUBCLASS 131.

1866	Mar. 20	53327*	J.K.O'Neil	Weighing-scoop.
1868	Jun. 2	78604*	J.K.O'Neil	Weighing-scoop.
1868	Oct. 6	82842	A.B.Hurd	Measure & weigher.
1876	Jul. 18	179842	P.Deland	Weighing buckets.
1877	Oct. 16	196245*	M.L.Mery	Weighing-scoops.
1882	May. 23	258476*	C.H.Roberts	Grocer's scoop.
1887	Aug. 2	367429	Moore & Thompson	Combined scoop & scale.
1889	Jun. 18	405648	L.Zwiesler	Weighing & measuring scoop.
1891	Feb. 10	446179	L.Bartlett	Weighing-scoop.
1891	Aug. 4	456959	Klippert, Vogt and Weiland	Device for weighing liquid.
1895	Jan. 1	531954	G.Langer	Combined scale & scoop.
1895	Apr. 16	537743	P.J.Berquist	Weighing-scoop.
1895	Jul. 2	541891	H.G.Stiebel, Jnr.	Weighing-scoop.
1895	Dec. 10	550953	N.S.Douglas	Weighing-scoop.
1896	Nov. 3	570553	J.W.Hunter	Portable weighing scale.
1897	Sep. 14	590035*	W.H.Davidson	Hand scoop weighing scale.
1898	Aug. 23	609644	A.A.West	Weighing-scoop.
1899	Feb. 14	619422	G.Kohn	Scoop scale.
1899	Apr. 4	622619	Granat & Lamott	Weighing-scoop.
1899	Aug. 15	630942	J.H.Snow	Scoop scale.
1899	Oct. 10	634747*	C.B.Crofford	Combined scale & scoop.
1899	Nov. 14	636920	B.McKiernan	Weighing-scoop.
1903	Jul. 14	733411*	W.Maxwell	Automatic weighing-scoop.
1904	Jan. 5	748856	H.H.Fox	Weighing-scoop.
1904	Jan. 5	748878	T.D.Owens, Jnr.	Scoop.
1905	Dec. 12	807333	A.L.Swank	Contents indicator for receptacles.
1906	Apr. 17	817974	E.L. & A.I.Heizer	Weighing-scoop.
1906	Jul. 10	825812	B.D.Emanuel	Weighing-scoop.
1907	Jan. 8	840940	F.C.Howe	Scoop.
1907	Jan. 8	840941	F.C.Howe	Scoop.
1907	Apr. 30	852182*	F.C.Howe	Weighing-scoop.
1907	Apr. 30	852183	F.C.Howe	Weighing-scoop.
1907	Nov. 19	871676	W.G.Davies	Automatic portable weighing-scoop.
1907	Dec. 17	873850	T.T.Ellis	Combination scoop & scale.
1910	Feb. 22	949766	A.Himottu	Weighing-scoop.
1910	May. 3	956626	D.J.Clupka	Weighing-scoop.
1912	Jun. 11	1029138	F.H.Martin	Scale scoop.
1913	Apr. 29	1060483	J.H.Morehead	Self-weighing scoop.
1915	Sep. 7	1152824	J.I.Leary	Scoop.
1916	May. 2	1181751	H.Ernst	Liquid measuring device.
1918	May. 21	1266881	D.O.Taylor	Scoop.
1930	Dec. 30	1787352	J.M.Bensinger	Scoop scale.
1943	Nov. 2	2333385	C.A.LeBert	Scoop.

* Illustrated in this article.

Precision Balance 1

HANS JENEMANN

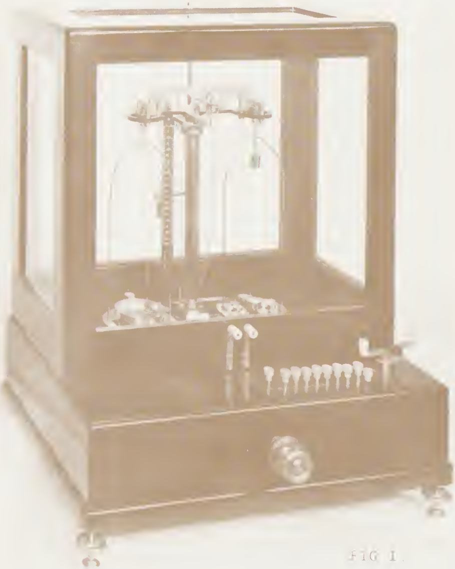


FIG 1.

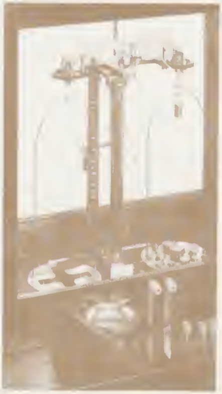


FIG 2.

This diamond balance was made c1930 by Haigis of Onstmettingen, Württemberg, Germany. The length of the beam is 140mm and the dimensions of the case 450 x 230 x 560mm high, (16.9"x 9"x 22") Fig 1.

The diamonds are put in the pan without opening the case, by a complex arrangement of travelling pan and trapdoor. The mechanism is operated by turning the two cranked levers on the right of the case. When the first lever is turned clockwise, a cross-shaped 'transporter' rises up through a cross-shaped hole in the pan carrier, Fig 2. The transporter lifts the pan off the carrier. When the second lever is turned clockwise, the transporter carries the pan forwards through a trapdoor which opens automatically in the front of the case, Fig 2. Diamonds are then placed in the pan. Turning the levers anti-clockwise returns the pan to the carrier for weighing.

Buttons on the front of the case operate the weights. Each weight is suspended above the weight pan by a rod which projects through a hole in the pan. When a button is pressed it lowers the rod and deposits the weight on the pan. ▷

Fine weighing is done using the chain weight which hangs in a loop from the beam to the vertical chart next to the pillar. By raising or lowering the end of the chain, a lesser or greater weight of chain is suspended from the beam. This amount is indicated on the chart. A knob on top of the balance adjusts the zero position. The large knob at the front of the case operates the relieving gear to lift the beam off its bearings. The weights are all in Carats - Metriques and the chain weight weighs 0 - 1CM x 1/100CM.

This machine is a "little wonder", but, I fear that in practice it was too complex to perform reliably. It is probable that only a few were made.

Letters

Thank you for giving, in Equilibrium, the "Balancier" plates from the Encyclopaedia, with translations and pertinent comments. Regarding the latter, I noticed a very minor mistake, which does not affect scale-making in any way. It is in Plate I. In fact, the girl does not belong to the scale-maker's workshop. The original legend is "Woman handing-in her scales for repair, as the hooks are not in order". The woman is thus a customer, and in the Plate there is a basket or tray of fruit which is probably hers.

Concerning the date of publication of the Encyclopaedia, it began in 1751 (the year you mentioned), but the complete edition took many years to complete. The volume of plates containing the Balancier bears the date 1763.

Yves Noel.

Thank you, Professor Noel, for clarifying these two points. I am always pleased to have corrections and further evidence. Editor.

OBITUARY

The death occurred, recently, of François Lavagne, at the age of nearly 80. Monsieur Lavagne was an important member of the Société Métrique de France, and was known for his work on French and European weights and scalemakers. He was co-author, with Jean Forien de Rochesnard, of 'Poids d'Alsace et Lorraine', 'Poids de Nice et de la Corse', and 'Balanciers Lyonnais des 17 et 18 siecles'.

Lavagne's monograph on the French Postal Administration* and their use of scales and weights will shortly be republished by the Société Métrique de France (See EQM page 424). A review of Lavagne's book 'Balanciers, Etalonneurs - Leurs Marques, Leurs Poincons', will appear in a future issue of EQM.

** An English translation is available from the Editor.*

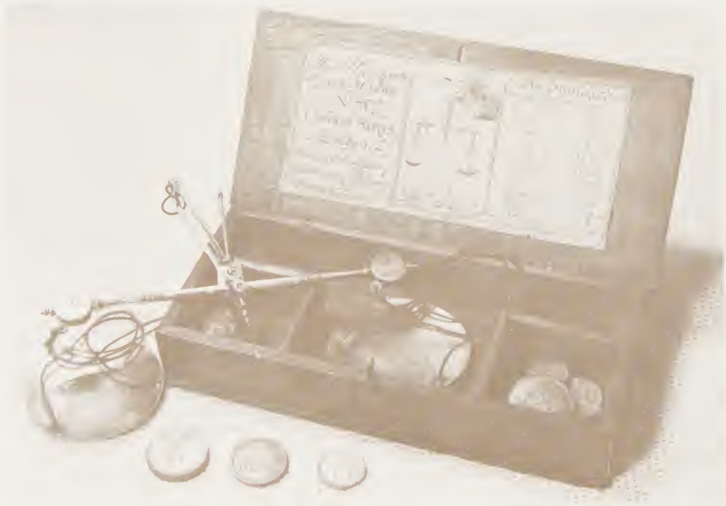
Guinea Weights (Part 2)

RONALD STOCKS

The reign of George III saw the issue of a whole spate of guinea weights. Some of the older guineas which had been left untouched by the recoinage of 1733 were, by this time, showing considerable wear, and by the time George III came to the throne in 1760, this deterioration was beginning to split the currency into those coins which were acceptable abroad and those which were fit only for domestic transactions. Only new guineas could be exported, and all new guineas were believed to suffer this fate. Adam Smith likened the Mint to Penelope, whose work each day was undone each night.

A circular was issued in 1769, by the Mint solicitor, to remind the public that clipping guineas was a crime and that substantial benefits could be obtained by informers. This set off a latent distrust of the gold coins in circulation. Not only bullion, but also paper notes, rose to a premium over the discredited guinea. These events must have caused people to look carefully at every guinea, and to weigh them more frequently.

In 1772, Matthew Boulton stated that the gold circulation was much diminished, and would be diminished so long as the refiner or manufacturer could buy more than a thousand pounds worth of gold coin with a £1,000 bank note, which was the case at present. The coin was also diminished by much clipping and sweating.



Under the influence of Charles Jenkinson, first Earl of Liverpool, the full bullion content was restored to the guinea. A statute was passed in 1773, which required tellers of the Exchequer, and permitted anyone else, to cut and deface gold coins which had been diminished otherwise than by fair wear and tear, or which seemed to be counterfeit.

A Treasury Order of 22nd July 1773, ordered all officers engaged in the receipt of revenue to assume that all coins under stated weights had, in fact, been unlawfully diminished. They were to mutilate all such coins and also, any above those weights in which unlawful treatment was evident, and to accept these and other cut guineas only by weight at the Mint price for gold of £3..17s..10½d per ounce. The weights stated in the Treasury Order at which guineas escaped demonetization, were:-

Coined since 31st December 1772 .. 128 grains (5dwt 8gn)

Coined from 1760 to 1772 .... 126 grains (5dwt 6gn)

Coined before 1760 .... 123 grains (5dwt 3gn)

Weights slightly below the proportionate figures were fixed for half-guineas and quarter-guineas.

Recoinage of light guineas began on 24th August 1773. The King's speech to Parliament, on 13th January 1774, announced that great progress had been made, and invited further legislation to clear out all defective coins. The two Houses had to confer before they agreed to an Act of Parliament in June, which authorised the calling-in of all guineas below 128 grains in weight, on the same basis; that is, at face value if they were not below the Treasury figures, and at bullion value if they were below the figures.

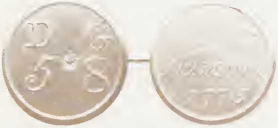
In order to leave sufficient coins in circulation, the recall was divided into two further stages. A Proclamation on the 24th June 1774, demonetized all gold coin below 126 grains, as in the original Treasury Order, as from the 15th July. A second Proclamation, on 12th April 1776, demonetized all the remaining guineas that were below 128 grains, with corresponding figures for the half and quarter guineas, with effect from 1st May 1776.

At this time, too, the Office of Weigher and Stamper of Money Weights was established, and a serious attempt was made to control the testing and use of money weights. Under these circumstances, a proper set of money weights became almost a necessity for any business man, and we find large numbers of guineas weights dating from this period. Many of them quote the date of the Proclamations:-

Weights bearing the bust of the King, facing to the right, with the inscription **GEORGIUS III DEI GRA**, or a simple **G III R** in script, or **GEO III**. The reverse is usually marked with a legend of the weight and sometimes with the date 1772. There is a fine series of weights by Kirk, with the name **KIRK**, or sometimes the initials **I K**, marked under the bust.

Weights marked **GUINEA WEIGHT**, **GUINEA**, **A GUINEA**, **1 GUINEA W**, etc.,with halves and quarters to match. The reverse is marked with a legend of the weight or the value of the coin.

GEORGE III continued from Part 1.



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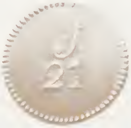
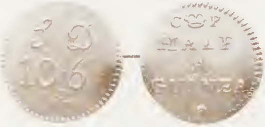


61d



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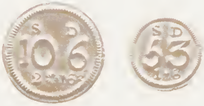
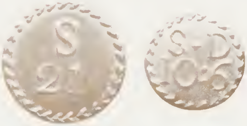
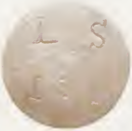


63d/64d



65d/66d



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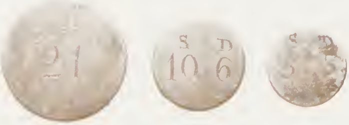

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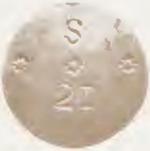
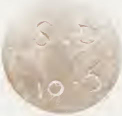


71u



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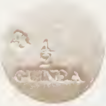

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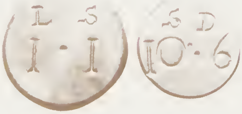

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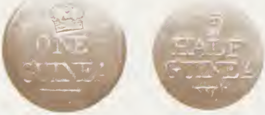

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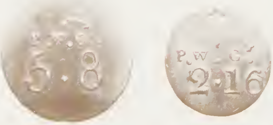

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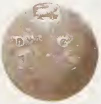

80u

Weights marked with legends of weights; **5.8 2.16 1.8; 5.6 2.14 1.7**, and sometimes with the date 1772 or 1773. Abbreviations of the units of weight are often added above the figures, written in a variety of ways, e.g. **Dwt, Grs, D. G. Pwt, Gr, P. G.** Sometimes, details of the Proclamation are also inscribed; **Coined before 1772, 1771 or Older, Up to 1st Jan^{y} 1772**, and **Coined since ye 31st Dec. 1771**, etc.

Weights with the obverse reading **GUINEA WEIGHT, HALF GUINEA WEIGHT, STANDARD GUINEA**, etc, with **ACCORDING TO ACT OF PARLIAMENT 1775**, or with **TOWER STANDARD 1776**, or **TO THE NEW STANDARD 1775**, or **BY ACT OF PARL^{t} 1775**. These weights were probably issued after the final Proclamation of 1776 Weights marked with legends of value; **21s, S21, 21 Shill, 10s 6d, 5s 3d**, and so on. Sometimes the value is marked on both sides, sometimes the weight is also marked. The weights for light coins are sometimes marked with the actual bullion value of the coin; **5dwt 6gr - 20s 6d; 2dwt 14gr - 10s 3d; 1dwt 7gr - 5s.**

It is difficult to date the weights accurately, because the date of the Proclamations would be inscribed on weights for many years after the event. It can probably be assumed that weights carrying the full weight of the coin, 5dwt 9gr, are of the later dates, as well as those mentioned above.

Many of the weights are marked with stamps of various kinds. We find the stamp of the Imperial Crown - the mark of the Stamper of Money Weights (not so many examples of this as we might expect); the ewer of the Founder's Company; the lion used by the Assay Office of the Goldsmith's Company; and marks used by various provincial assay offices, such as Newcastle, Exeter and Birmingham, the latter using an anchor.

The majority of weights are made from brass and are circular in form, but a few may be found which are square, rectangular, or with little knobs for lifting.

In 1797, a third of a guinea was struck, and after this date we find a small number of weights for the 7s piece. Guineas continued to be coined until 1799, after which the gold coin was confined, until 1811, to half-guineas and the new seven shillings piece. ▷

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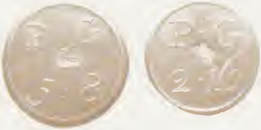
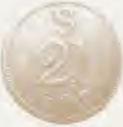
This article by the late Ronald Stocks was first published in Libra Vol 7, and the Editor is indebted to Mrs.Stocks and to Maurice Stevenson for their kind permission to republish the work.

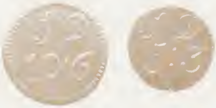
GEORGE III continued.



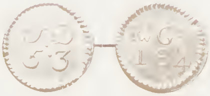
81d/82d



83d



84d/85d



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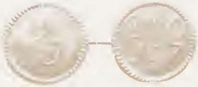

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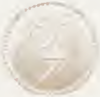
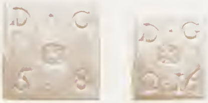
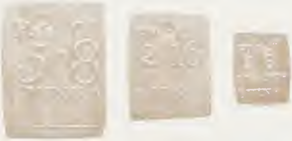


88d

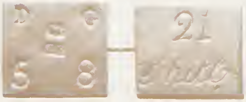


89d*/90d*

91u*



92u*/93u/94u



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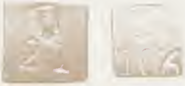
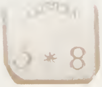


96d*/97d*



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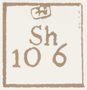

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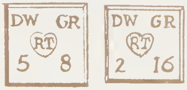

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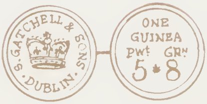

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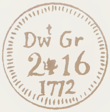

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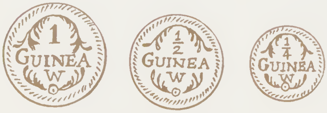
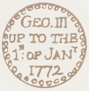


104*/105/106



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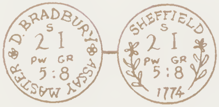


108*

Illustrations

BY MICHAEL CRAWFORTH

The original illustrations which accompanied Ronald Stock's article have been replaced by a more comprehensive selection, which shows plain weights and knobbed weights in addition to the decorative weights usually shown in such works.

Photographs and drawings by Michael Crawforth. COPYRIGHT - not to be copied without permission.

NOTES ON THE ILLUSTRATIONS

○—○ - a bar connecting the illustrations indicates the obverse and reverse of the same weight.

u - u after the number indicates a uniface weight. i.e. plain on one side

d - d after the number indicates a dual-face weight. i.e. identical on both sides.

* - * indicates that there is a note about the illustration.

34/35 - / between the numbers indicates that the weights are from a matching set.

All the weights come from scales in shagreen boxes (SHB), cut-from-solid boxes (CFS), made-up-boxes (MUB), or japanned metal boxes (JMB), unless stated otherwise.

62 Crowned CW. These initials may be those of Callingwood Ward, (see Nos. 131 & 141) or may mean Current Weight.

67 L1 1S (one pound and one shilling. i.e. a guinea).

68-69 Elegantly hand engraved weights from a box of scales by John Wilson, watchmaker, Newcastle upon Tyne.

80 Lion stamp facing right is said to be the mark of the Assay Office in Newcastle upon Tyne. It may be a spurious mark.

86 1 Pwt:$8\frac{1}{4}$Gr. This is the full weight for a new quarter guinea without allowance for wear.

87 1 dwt $6\frac{3}{4}$grains rounded up to 1 dwt 7grains.

89,90 Lion stamp facing left was the verification mark used at Goldsmith's Hall in London.

91 The crown is not the one used by the Royal Mint. Was it put on by some other authority, or was it the maker's attempt to make the weight appear officially approved ?

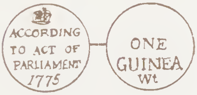
92 Anchor stamp of the Birmingham Assay Office inaugurated in 1773.

95 Maker's initials C.S. (Charles Sommers, London).

96,97 Griffon's head stamp for Bristol.

98 Maker's name AUSTIN (Aaron Austin, Bristol).

GEORGE III continued.



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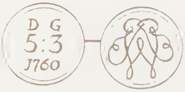

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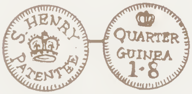

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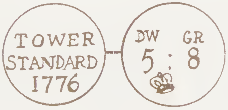

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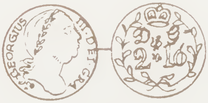

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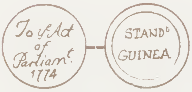

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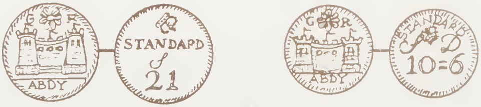
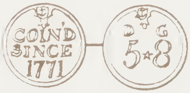


115* 116*



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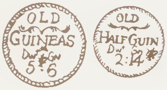
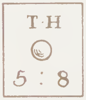


118/119



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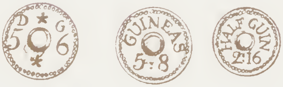
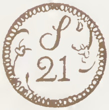


121*/122*/123*



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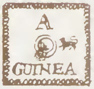

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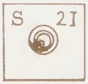

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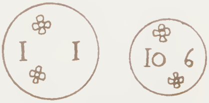
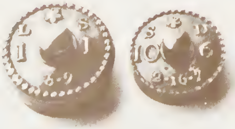
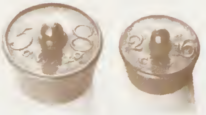


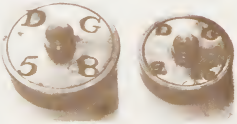
127/128



129*/130*



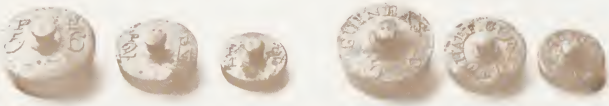
131*/132*

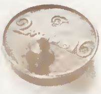


133*/134*

99	Sh = shillings (pence not annotated).
100,101	Maker's initials, R.T. (Richard Tucker, Exeter).
102	Maker S.GATCHELL & SONS, DUBLIN.
104	1 GUINEA W = 1 Guinea Weight.
108	Marked D.BRADBURY, ASSAY MASTER, SHEFFIELD. The Assay Office in Sheffield was inaugurated in 1773.
110	Maker's initials intertwined JWJ (James Warren, Dublin).
111	Patentee's name S HENRY This weight was supplied with the type of scale invented by Henry, and shown in EQM page 271, Fig 6.
112	TOWER STANDARD 1776. The Royal Mint was in the Tower of London.
115,116	Maker's name ABDY (William Abdy, London).
120	Maker's initials T.H. (Thomas Houghton, Farnworth,Lancashire). Knobbed test weight from a folding gold balance.
122-123	Knobbed weights from an oval japanned metal box. They are a matched set, even though the coin name is not marked on the light guinea weight
126	Knobbed weight from a cut-from-solid wood box by Iohn Lund.
129,130	From an oval japanned metal box.
131,132	Maker's name, C.WARD and initials on the half guinea weight C.W. (Collingwood Ward Birmingham), from a folding gold balance.
133,134	From an oval japanned metal box.
135-140	A six-piece set from an oval japanned metal box.
141	Maker's name, C.WARD (see No.131), from a folding gold balance. The knob is offset to provide space for the scale beam.
142,143	From a folding gold balance.
144-146	Part of a set from a cut-from-solid wood box by John William Herbertz, London. The rest of the set was for the Moidore, Portugal Piece and their subdivisions.
149-151	Maker's initials C.S. From a shagreen box with the label of Charles Sommers, London.
152,153	Test weights from a turn-type folding gold balance by Thomas Houghton, Farnworth, Lancashire.
154	Maker's initials A.W. (Anthony Wilkinson, Ormskirk, Lancashire). From a folding gold balance.
155	From a folding gold balance.
156-158	From a folding gold balance by H.Bell & Co, Prescot, Lancashire.
159-161	From a folding gold balance by H.Bell & Co. Remainder of set was for the sovereign and half sovereign.
162-164	From a folding gold balance similar to the one shown on page 457.

GEORGE III continued


135*/136*/137*/138*/139*/140*



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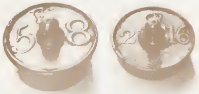
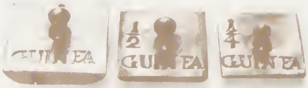
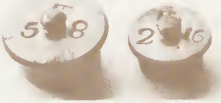


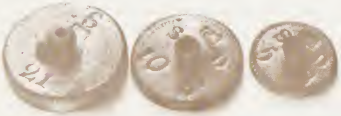
142*/143*

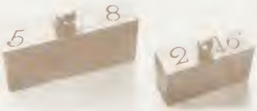


144*/145*/146*

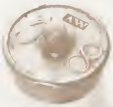


147*/148*


149*/150*/151*

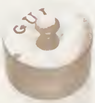


152*/153*

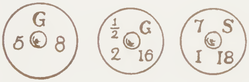


154*

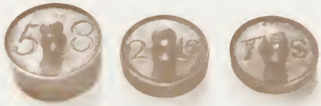
GEORGE III or GEORGE IV



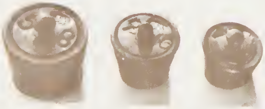
155*

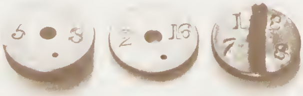


156*/157*/158*



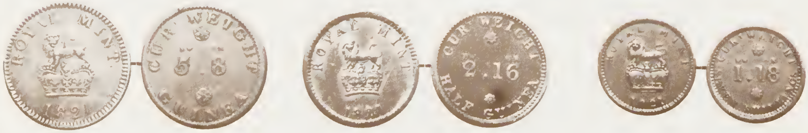
159*/160*/161*


162*/163*/164*



165*/166*/167*

GEORGE IV (1820-1830)



168*/169/170

165-167 Compound weights from a folding gold balance by H.Bell & Co. The seven shillings weight is converted to a half-guinea weight by adding the 2.16 weight. Similarly, a guinea weight is made by placing the 5.8 weight on top of the other two.

168 ROYAL MINT 1821. CUR^t.WEIGHT. GUINEA. (Current Weight).

Guinea and half-guinea weights by William Abdy, London.

Showcase

1. Iron steelyard with brass seal on the weight. Made in Austria. Capacity 5 kg. Length 560mm (1' 10"). Verification marks for 1898, 1901 and 1910.

DIRK SCHMITZ COLLECTION

2. Kitchen scales by Krups of Germany. Graduated 0 - 10 kilo and 0 - 20 lb. White enamelled sheet metal. The scene depicts a sailed barge near a windmill.

HERBERT GRIESHABER COLLECTION

3. Paper knife and letter balance, marked MAILWAY PAT.PENDG. Chromium plated metal. The letter is placed upright in a groove at the end of the handle. There is a single pivot below the knife providing a single capacity of 1oz.

BOB STEIN COLLECTION

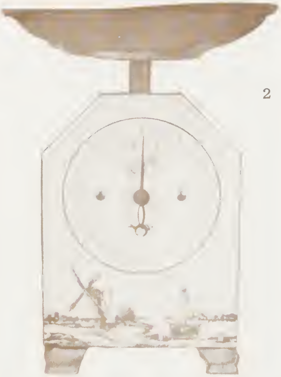
4. Paper sampling scale marked "Leunig. London. Made in Germany" It is graduated 0 - 80 lb for three sizes of ream, 480, 500 and 560 sheets.

EX GUUS THÜRKÔW COLLECTION

5. MICROMETER scale by the Dodge Scale Co. New York City. Patented 22nd March 1898 and 23rd July 1905. The weight is moved by rotating the knobs at the end of the beam. Graduations around the cylinder provide accurate subdivisions of weight, rather like an engineer's micrometer. Brass, iron, marble base. (Compare with similar scale, EQM page 361, which was not actually marked with the maker's name).

JERRY KATZ COLLECTION

1



2

SHOWCASE

3

4

5

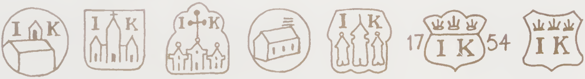
Profile - Johannes Kirch

CARL MÖNNIG

A scalemaker in Köln (Cologne) could be an important citizen in the past, become an official of the City and receive public honours. Johannes Kirch achieved this status. He was a Town Councillor and Brandmaster and, in 1740, he became an official of the Armoury, Beermaster and Clerk of the Fishmarket. In 1753, he was appointed the Eichmeister of Köln (Chief Weights and Measures Inspector), and in 1754, he was honoured to become the Citizen's Standard Bearer, and Bannaret (Officer) of the Company of Militia.

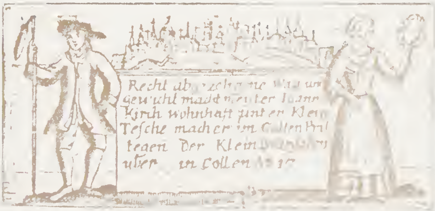
The Brandmaster was the Chief Fire Officer of the citizen's fire brigade, the Beermaster supervised the brewing and quality of the beer, cleanliness of breweries, accuracy of measures and licences for selling beer. A Clerk of the Fishmarket had to supervise the quality and sale of fish, the correct use of brand marks and the accuracy of weights and measures. In the event of war, the Bannaret commanded the Militia defending the City gates or walls.

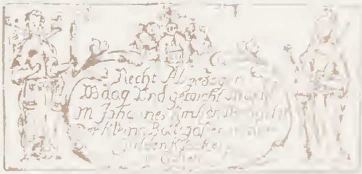
In spite of these official duties, Kirch found time to run his scalemaking business. Apart from one half-pound weight, the main evidence of his products comes from coin scales and weights in cut-from-solid wood boxes. These sets are typical of the 18th century Köln style, with many square brass weights stored in individual sockets in the box, and sometimes in the lid. His labels were changed, from time to time, and give his name different spellings :- (Johannes Kirch; Tonnes Kirch; Ioann Kirch; Johann Kirchen; Johann Kürch; Johannes Kirchen; Joannes Kirchen).

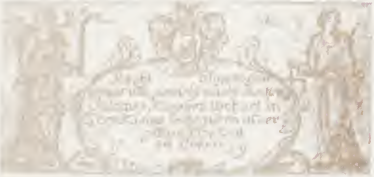


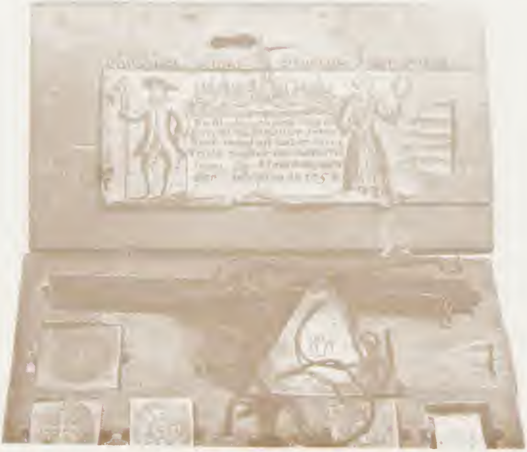
Kirch's scale beams have German swan-neck ends and one triangular and one round pan. He used several different mastersigns, which he stamped in his pans, and on his weights. The signs are a pun upon his name, showing a church with his initials I.K.. When he became Eichmeister, the church was replaced by three crowns, the official symbol of Köln. The earliest date known, 1726, comes from a scale box label with the "Gulden Klocken" address. Between 1744 and 1748, Kirch moved to the "Gulten Pril", and from 1753, his address was the "Gulten Prezl".

A portrait of this highly respected citizen (who died in 1777) was painted in 1766, and it can still be seen in the Stadtmuseum in Köln (Cologne).









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KISCH. Bruno, Scales and Weights - A Historical Outline. Yale U.P. 1965.

NUMISMATICA, Auction catalogue X, Page 80. Vienna, 1975.

Notes & Queries

NQ 64 WILLIAM B.PRESTON (NQ 50) reply from W.Lindeyer.

You may recall my request for information about William Preston. I wrote to the Boston Library Reference Department, and after two months they came forth with some very interesting information from the Boston City Directories :-

Jones & Preston were first listed in 1851 at 7 Market Square, Boston. Around 1860, they moved to 20 Faneuil Hall Square. In 1865 the name changed to William B.Preston, manufacturer of, and dealer in,scales. In 1868 the entry also stated "formerly Jones & Preston".

In 1870, a large classified advertisement read "William B.Preston, Manufacturer of, and dealer in Patent Balances, Platform and Counter Scales, Butcher's Steelyards, 20 Faneuil Hall Square, Opposite S.W. corner of Faneuil Hall, Boston. All kinds of weighing apparatus repaired and scales exchanged."

During the 1870's he took his son into the firm, and they were listed as :- "William B.Preston & Son (John A.) Scale Manufacturers, 14 Portland Street, h. at Revere." In 1894, they had moved to 160 Blackstone Street. They disappeared from directories in 1897.

I never realised that some of our libraries could be such a valuable source of information. It is something you may wish to suggest to your readers.*

NQ 65 RARE FOLDER BY THOS. WILLIAMS note from J.Visser.

I have a folding gold balance by Thos.Williams, Scale Maker, No.71 Cannon Street, London, in a mahogany box 137 x 24 x 15mm. Instead of the usual turn-over weight, this has a rectangular weight sliding along the beam which is graduated 3 to 9 (pennyweights). The weight is engraved with the following table. This type is not in your book.

		P	G
1	LAMOEDE	9	6
½	LAMOEDE	4	15
¼	LAMOEDE	2	7½

COMMENT from the Editor.

The sliding weight and unusual coin facility make this a rare example. I do not know the name LAMOEDE, but the weights correspond with the Johannis, Half-Johannis and Quarter-Johannis (36s, 18s, 9s), which were current in England at the beginning of Thomas William's working life in 1776.

Has any member knowledge of the origin of the name LAMOEDE ? Was it confused with a Moidore ?

* *Would any member who obtains similar information please send a copy to me for publication.* *Editor.*

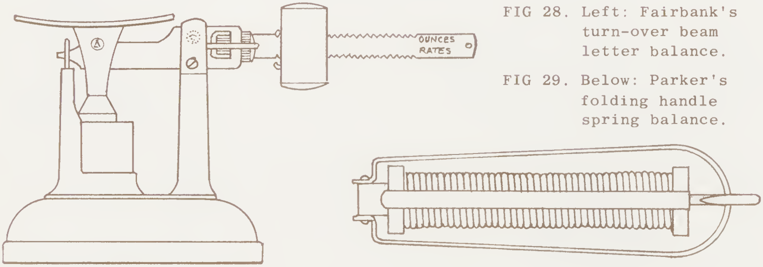


FIG 28. Left: Fairbank's turn-over beam letter balance.

FIG 29. Below: Parker's folding handle spring balance.

1878 2 May. No. 1774. A.M.CLARK. (for F.Fairbanks) See Figs 28 & 33.

A half-roberval and steelyard letter scale has a beam which can be rotated about its longitudinal axis. When turned in one direction, graduations in ounces are displayed, when turned in the other direction, graduations in grams can be used.

This is an interesting variation of Fairbank's standard letter steelyard mounted on a cast iron base. The example in Fig 33 has postage rates.

1879 24 Feb. No. 744. W.HISCOCK. (Provisional)

A pendulum balance is mounted between vertical frames. A toothed wheel on the axis of the pendulum turns a double pointer via a pinion wheel. The pointers indicate weight and postal rates.

No drawing was supplied by the patentee, but it seems to be another variation of the balances marked M & CO, which were patented by Hiscock (see No.5666 of 1882, page 512).

1879 7 Aug. No. 3171. T.J.SMITH (for J.Deschamps) See Fig 31

A hydraulic balance has a plunger floating in a liquid contained within a vertical cylinder. The displacement of liquid caused by a load, is used to indicate the weight by various alternative methods - graduations on the plunger, or on the cylinder, or on a graduated glass tube fixed to the side of the cylinder.

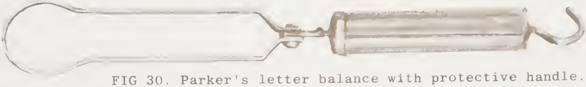


FIG 30. Parker's letter balance with protective handle.

Although no specific purpose is mentioned, the drawing suggests that postal use was one of the purposes envisaged. The design is very similar to others patented or registered years before 1879, so it is surprising that a further patent was permitted. No example has been seen by the author.

1880 24 Aug. No. 2116. W.R.LAKE. (for S.Horn & M.F.Albracht) Figs 32 & 34.

A typical pendulum balance has a wide quadrant graduated with the weight and various rates of postage.

The patentees have achieved an easy-to-read symmetrical quadrant by locating the pointer on an extended arm. In the example shown in Fig 34, there are postage rates for Germany, Austria, Hungary and the Universal Postal Union. It is marked "Balance Internationale. Patent Albracht-Horn".

1880 22 Sep. No. 3835. C.C. & S.B.PARKER. See Figs 29 & 30.

A spring balance has a casing made of coiled wire with an external graduated bar and overlapping pointer. The suspension loop is hinged and can be folded back over the casing to form a protection for the hook.

Although postal purposes are not mentioned by the patentees, the example shown in Fig 30 was made for weighing letters. The folding handle is a clever and useful idea, particularly for the angler's scale which has a very sharp hook. The coiled wire case and vulnerable pointer seem to have no merit, and have been omitted in production.

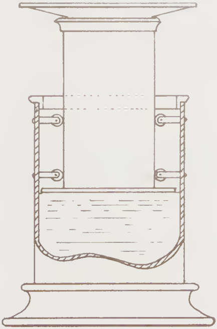
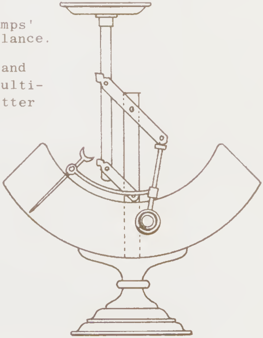
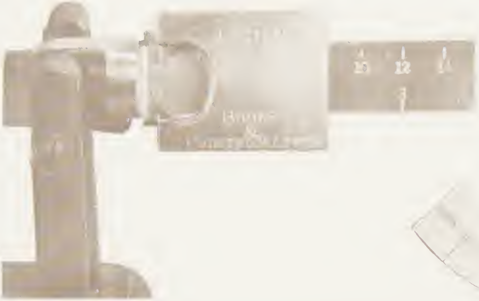


FIG 31. Left: Deschamps' hydraulic balance.

FIG 32. Right: Horn and Albracht's multi-graduated letter balance.





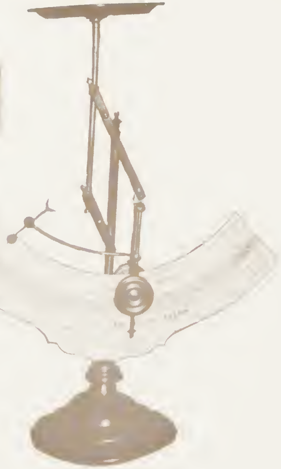


FIG 33. Above: Detail of Fairbank's turn-over beam showing postage rates and swivel joint.

FIG 34. Right: Horn and Albracht's pendulum with offset pointer.

1881 2 May. No. 1882. J.NADAL.

This patent combines a letter container, clock, calendar, stamp drawer, newspaper rack and a scale for weighing letters and parcels.

No drawing or description of the scale was supplied by the patentee, and no example has been seen by the author.

1881 31 Aug. No. 3788. J.S.DOWNING.

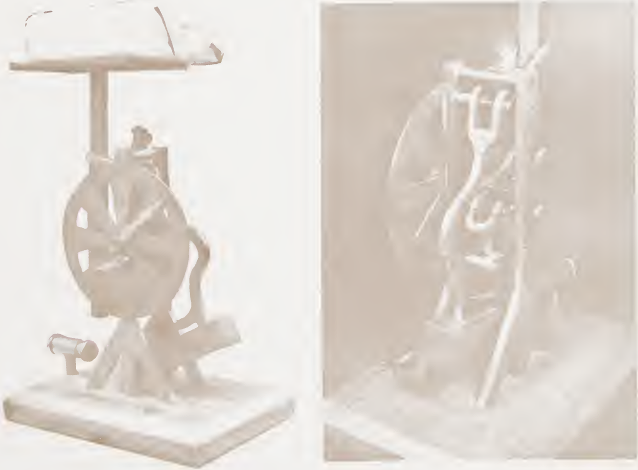
Rubber feet are fitted to the base of letter scales, inkstands, tea-caddies and other items.

This is a prime example of a patent, which may be quoted on a letter scale giving the impression that the scale is patented, but which has nothing to do with weighing.

1882 28 Nov. No. 5666 W.HISCOCK. (Provisional). Figs 35 & 36.

A vertical rod is pin-jointed to three parallel forked levers, one above the other, the uppermost arm projecting beyond its axis, and having a counter-weight fitted. The arm is bent in such a manner as to allow the weight to pass under the lower of the three axes. The second forked arm carries a toothed segment geared with a wheel attached to a pointer which travels around a graduated dial indicating weight. A second pointer, travelling over a quadrant on the same dial, indicates rates of postage. A spring buffer is attached to the baseplate to check the motion of the weight on its return swing.

No drawing was supplied by the patentee, but the description exactly fits the large parcel scales usually marked M & CO. but also seen with the names Parkins & Gotto, Mellliship & Harris, and Houghton & Gunn. The mechanism can be seen in Fig 36.



FIGS 35 & 36. Pendulum parcel balance by M & Co. The mechanism fits Hiscock's patent.

* * *

COLOUR OK

The Editor now has equipment for making satisfactory black and white prints from COLOUR NEGATIVES. So, all you colour enthusiasts can now send contributions to SHOWCASE ! Lend me your negatives for a few weeks and I will do the rest.

Editor.